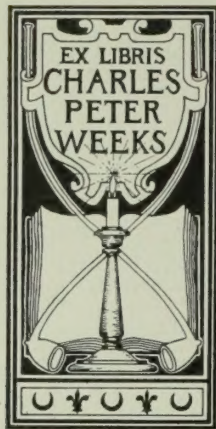


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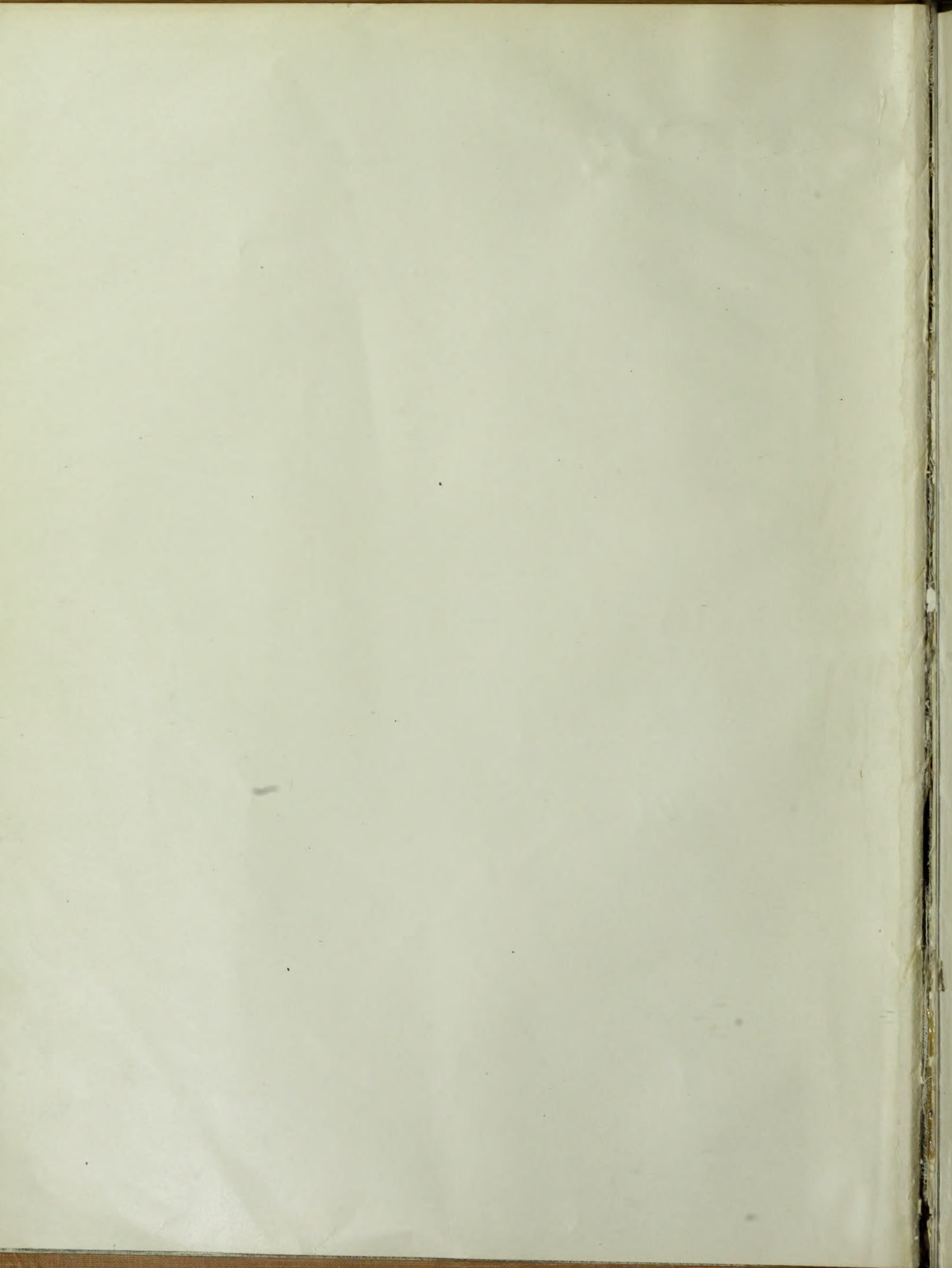


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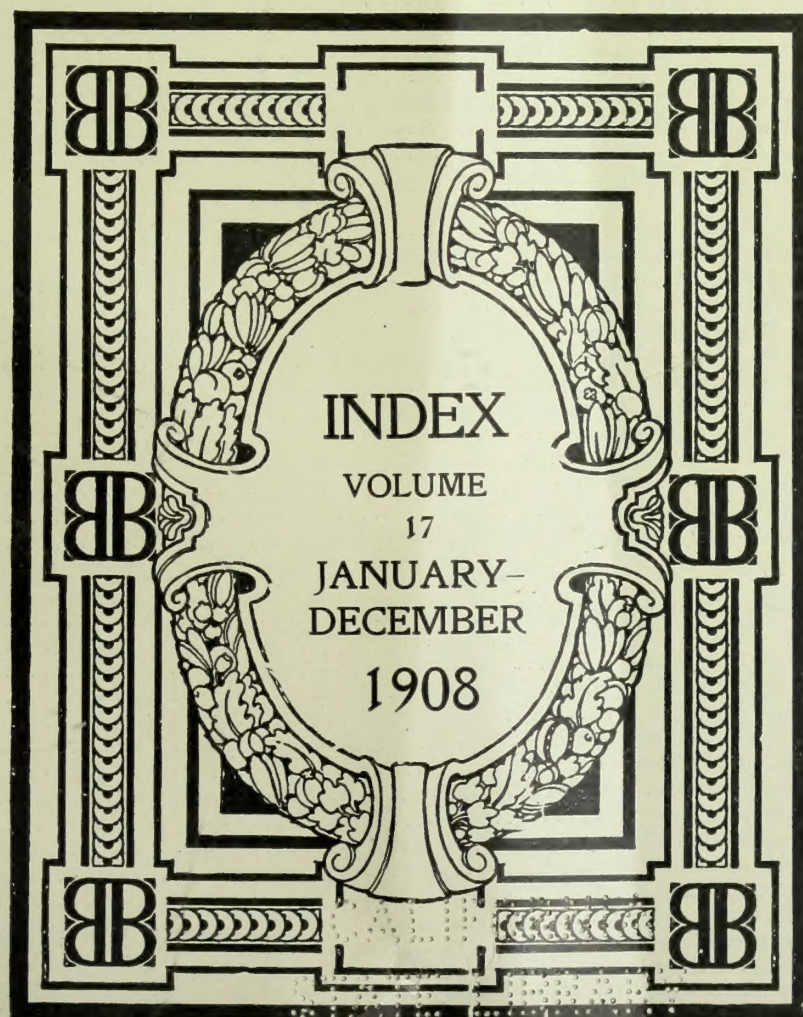
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THE
BRICKBILDER
AN
ARCHITECTURAL
MONTHLY



PUBLISHED BY ROGERS & MANSON
EIGHTYFIVE WATER STREET BOSTON MASS.

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THE BRICKBUILDER

VOLUME XVII

JANUARY 1908

NUMBER I

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ROYAL PALACE, FREDERIKSBORG, DENMARK.

THE BRICKBUILDER

VOL. 17 NO. 1

DEVOTED TO THE INTERESTS OF ARCHITECTURE IN MATERIALS OF CLAY

JANUARY 1908

TWO bills of great importance to the future of building in Massachusetts are now before the State Legislature. One of these, presented in the name of the Boston Real Estate Exchange, provides that mortgages placed on real property during the progress of improvements on the property, for the purpose of providing funds to pay for such improvements, shall have precedence over mechanics' liens connected with the improvements. We may say that it is our own belief that the special privileges granted to mechanics by the lien laws are not only unconstitutional and contrary to the spirit of free government, but that they form a direct and powerful encouragement to shiftlessness and improvidence on the part of workingmen, as well as an unfailing support to the swindling builders who flourish under them. Apart from the larger view of them, however, they act, in practice, to prevent investment in building, for the reason that no one, unless he is paid an extravagant rate of interest to compensate him for this risk, will lend money to finance building operations, with the prospect that mechanics' liens, perhaps to the full amount of his loan, may at any time, without notice, be inserted, so to speak, between his mortgage note and the security for it. If it were not for this liability to loss of the principal through unexpected mechanics' liens, mortgage loans for improvement would be a very favorite form of investment, and multitudes of building projects would be carried through at moderate rates of interest which cannot now be financed or, if at all, only at extortionate interest rates.

Another bill, not at all connected with that of the Real Estate Exchange, yet forming a valuable complement to it, provides that Massachusetts savings banks shall, after the passage of the Act, keep at all times at least sixty per cent of their deposits invested in first mortgages on real estate, such mortgages not to exceed in amount, in any individual case, sixty per cent of the assessed value of the mortgaged property. This is certainly a conservative measure, and should be heartily endorsed by those who have seen savings banks elsewhere brought to grief within the last few months by investments in personal property. The objection which will be made to it is, that as it is slow work to realize cash in case of need from mortgages, the savings banks, to fortify themselves against a sudden run upon their resources, should have the privilege of changing their investments in their discretion from real estate mortgages to stocks and bonds, which are more readily turned into cash. There is, of course, a good deal of justice in this view, but in practice it is the source of much hardship to own-

ers of mortgaged real estate, who find themselves, in times of sudden panic, like those we have just passed through, very generally compelled to raise money at a ruinous sacrifice, or lose their investment entirely, as the result of a sudden change of policy on the part of the savings banks in regard to mortgage loans falling due. It is hardly necessary to say that the liability to this does much to discourage building operations, which, like all other business operations, must be carried on largely with borrowed money, the only difference being that in the judicious improvement of real estate, the money invested is safer than in any other mercantile transaction, although the goods produced with its help are less quickly salable than in other industries. The savings bank committees, recognizing both these points, yet fearing to be called upon at any moment for an amount of cash which cannot be quickly realized from foreclosures, are, under the present laws, compelled to convert their mortgage securities into those more promptly marketable, at the worst possible time for those to whom they have lent their money. It seems to us that this difficulty, which is a very serious one for building interests, might be met with great advantage, both to the savings banks and the owners of real estate, by an extension of the emergency currency idea now so much talked of as a relief for national banks. In general, the plan for national banks is to have them deposit securities with the Treasury Department, and receive, as a loan upon them, currency to seventy-five per cent or so of their par value; which can be used for paying their depositors' checks. The various schemes differ as to what sort of securities shall be accepted, and the rate of interest which the banks shall pay for the accommodation; but in the case of savings banks both these details can easily be settled. As no security could be better than first mortgages on real estate, not exceeding in amount sixty per cent of the assessed valuation, a State Treasurer, or, possibly, some bank of reserve, under state authority, would find it very simple to receive such mortgages from the savings banks as security, and issue upon them emergency currency to the amount of three-quarters of their face value, at a rate of interest which the savings banks, who would be collecting interest all the time on the mortgages themselves, could pay without any loss, and which would be sufficiently remunerative to the bank of reserve, or to the state treasury; at the same time that any possible run on a savings bank so conservatively managed as this bill requires would be amply provided for.

The American Theater. -II.

THE PLAN.

BY CLARENCE H. BLACKALL.

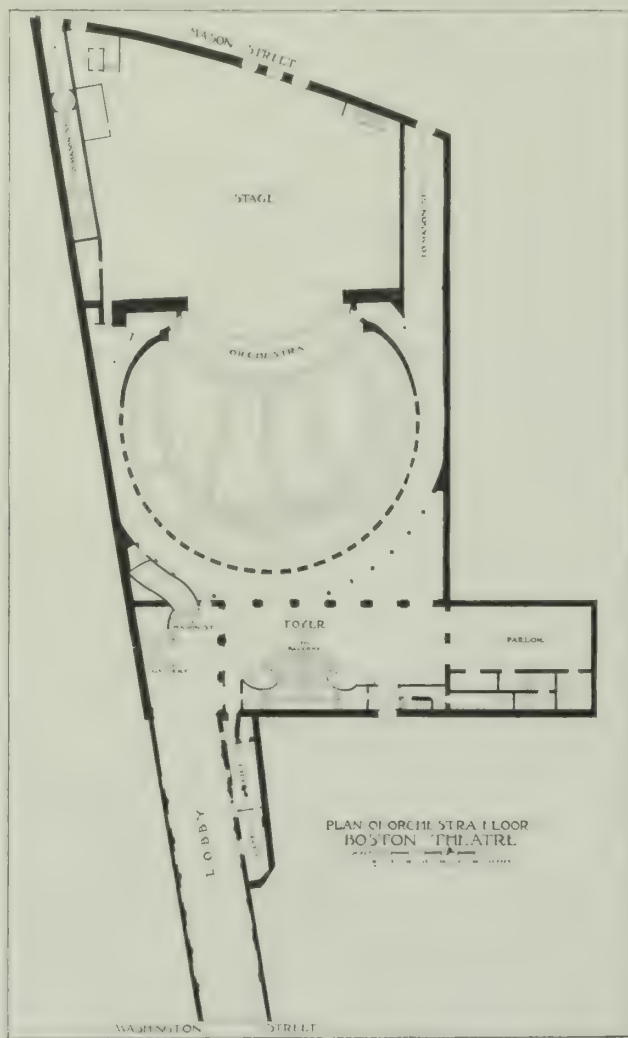
OF theaters erected in the early years of the 19th century there is little that can be said. The public sentiment of the country as a whole was decidedly hostile to theatrical representations of any sort. The talent available was beneath criticism as a whole, and the country was too poor to think of building any monuments. Furthermore, the remarkable Millerite movement which spread over the country in the late forties resulted in the obliteration of what few reputable theaters existed, the best of them being turned into churches, and the others remodeled for business purposes or destroyed. There was a good theater in Boston at that time, portions of which were converted into the original Tremont Temple. There was also a Tremont Theater close by, the last vestiges of which were destroyed by the fire in the so-called Studio Building within the past year, the theater having been debased to a storeroom for carpets.

The year 1850, or thereabouts, witnessed the construction of the Boston Theater, an edifice which was so well planned that to-day it holds its own with the more modern structures and is considered, and quite rightly, one of the best.

The Academy of Music in New York and the Academy at Philadelphia were also built in the years just before the Civil War, and incidentally it is of interest to note that these three theaters were government at the crowning period of the reign of Napoleon III decided to build a new opera house, a commission of experts was formed to study the problem in all countries. This commission, in its report to the government, called special attention to three American theaters—the Boston Theater, or Opera de Boston, as they called it, the Academy of Music at New York and the Academy at Philadelphia, all of which were cited as excellent models to be considered. When Garnier was finally commissioned to design the Paris Opera, his chief innovation, in fact, almost the only departure from the convention of precedent lines was in the relation between the exterior well and favorably known abroad. When the French

of the building and the plan. The mere audience room and its relation to the stage was designed exactly along the lines which had been followed for so long in Europe and which had been applied, with but slight modifications, in the three American theaters mentioned, but Garnier was the first modern architect to strongly emphasize the exterior treatment of the plan. The Paris Opera shows a long colonnaded loggia, corresponding to the entrance approaches, beyond this, a slightly higher glass dome corresponding to the salle, and a high pediment behind the whole and dominating the design, marking the stage. It has been considered

that his solution was final. European theaters have very generally accepted it as such, and the majority of opera houses and theaters designed abroad have shown a striving after the tripartite arrangement of the exterior. As a matter of fact, two-thirds of Garnier's exterior is utterly false to the plan. The motive of the façade does not correspond at all to his approaches, the dome over the salle lights in a most extravagant manner a scene painter's dock instead of the hall itself, and the relative proportions of the body of the house and the upper part of the stage are out of all keeping with practical requirements. Every architect who has been abroad has been profoundly impressed by Garnier's work, but the impression has never been sufficiently permanent to permit of translation to this country, and although in each of the three early theaters mentioned the lines of the audience room are similar to those of European theaters, such lines did not find continued favor here, and we have yet to see an American theater that in any way resembles in its scheme of



PLAN OF ORCHESTRA FLOOR, BOSTON THEATER.

treatment the arbitrary divisional scheme of Mr. Garnier.

The problem, as it usually presents itself to an architect to-day, is to pack the greatest number of seats into the least possible space and omit everything in the way of approaches and lobbies which the law does not absolutely insist upon. Willis K. Polk, some years ago, made a very clever design for a theater, which adapted in a very happy manner the motive of the Paris Opera House, but so far as we are aware this was not carried out. Most of our theaters are adjuncts of a commercial block, often a part of it; and when they are separate buildings, as in the case of the Majestic at Boston, the Illinois at

Chicago or the Garrick Theater in New York, the space allowed the architect for approaches, stairs, etc., is so inadequate that it is extremely difficult to treat the plan in anything like an academic manner or to, in fact, make any plan as such at all. Consequently the principles of America theater planning are but few. The shape of the auditorium is unfortunately fixed, in most instances, by the available dimensions of the lot. The subject of sight lines will be discussed in a separate chapter. The front of the stage in plan is in most theaters now carried straight across, the apron, or portion projecting beyond the curtain line, being from three to five feet deep at the most. An orchestra is nearly always provided for even though the theater is intended for the giving of plays in which music has no part, the so-called "incidental music" being one of the artistic inflictions on our drama.

The space for the orchestra is generally planned with the assumption that there would not be more than two rows of musicians measured out from the line of the apron, and consequently a depth at the center of six feet and a half to the edge of the orchestra space is a minimum. The chairs of the orchestra or parquet are best arranged in arcs of circles, centering on a point forty or fifty feet to the rear of the curtain line, and in actual practice it is a good scheme to keep the center of all seatings inside of the building so that the line can be struck from a center without offsets. The width of the rows is fixed by law in New York City at two feet eight inches. This gives comfortable spacing and is really enough for every kind of theater. In a very few instances this space has been increased to three feet, and of course, in theaters where there is expected to be a good deal of going out between the acts, and especially in the cheaper theaters where refreshments are served during the play to spectators, the width should be not less than three feet from back to back of seats.

Theater seats, or opera chairs, as they are specifically termed, are made in varying widths from eighteen to twenty-seven inches. In good practice, however, no seats should be put in of less than twenty inches, and the bulk of the seats should be twenty-ones or twenty-twos.

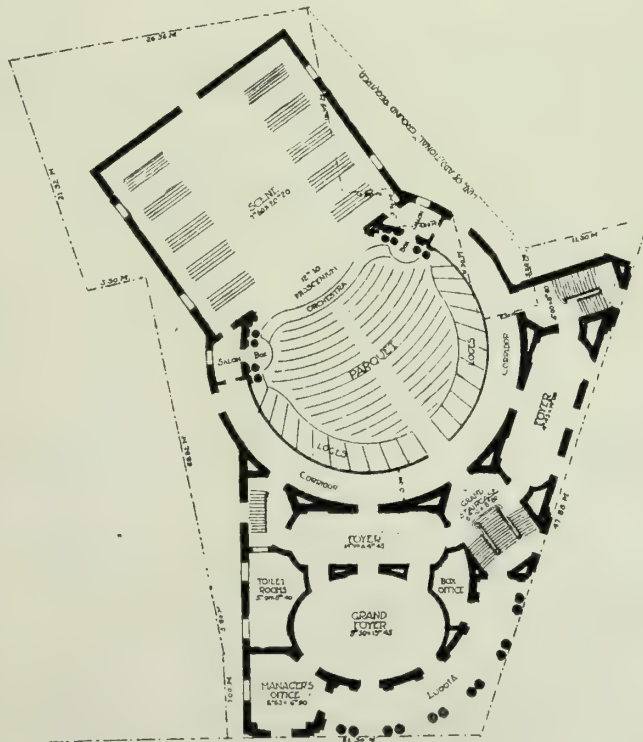
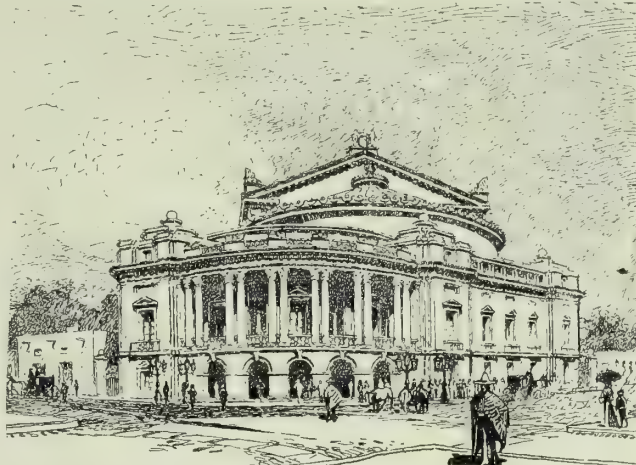
In laying out the seats the various widths are used to fill out the rows to bring the aisles even. The number of seats in a single row is governed partly by custom and partly by law. The Boston law does not allow any grouping which necessitates a spectator to pass by more than six chairs in getting out from his place. This means that the greatest spacing between aisles may not exceed thirteen seats. This is not law in all cities, but represents a very good practice which should be considered. Some cities prohibit any row of seats with a dead end, that is to say, there must be aisles at each end of each row. This also is excellent practice even where it is not law.

The floor of the parquet is dished or sloped toward the stage, as will be explained later in connection with the sight lines. Where the pitch is slight, not exceeding one and a half inches to the foot, the floor can be made continuous; otherwise it is built up in platforms, the aisles, however, being preferably sloped, even for grades as sharp as one in five, as steps should always be avoided in aisles and passages where possible.

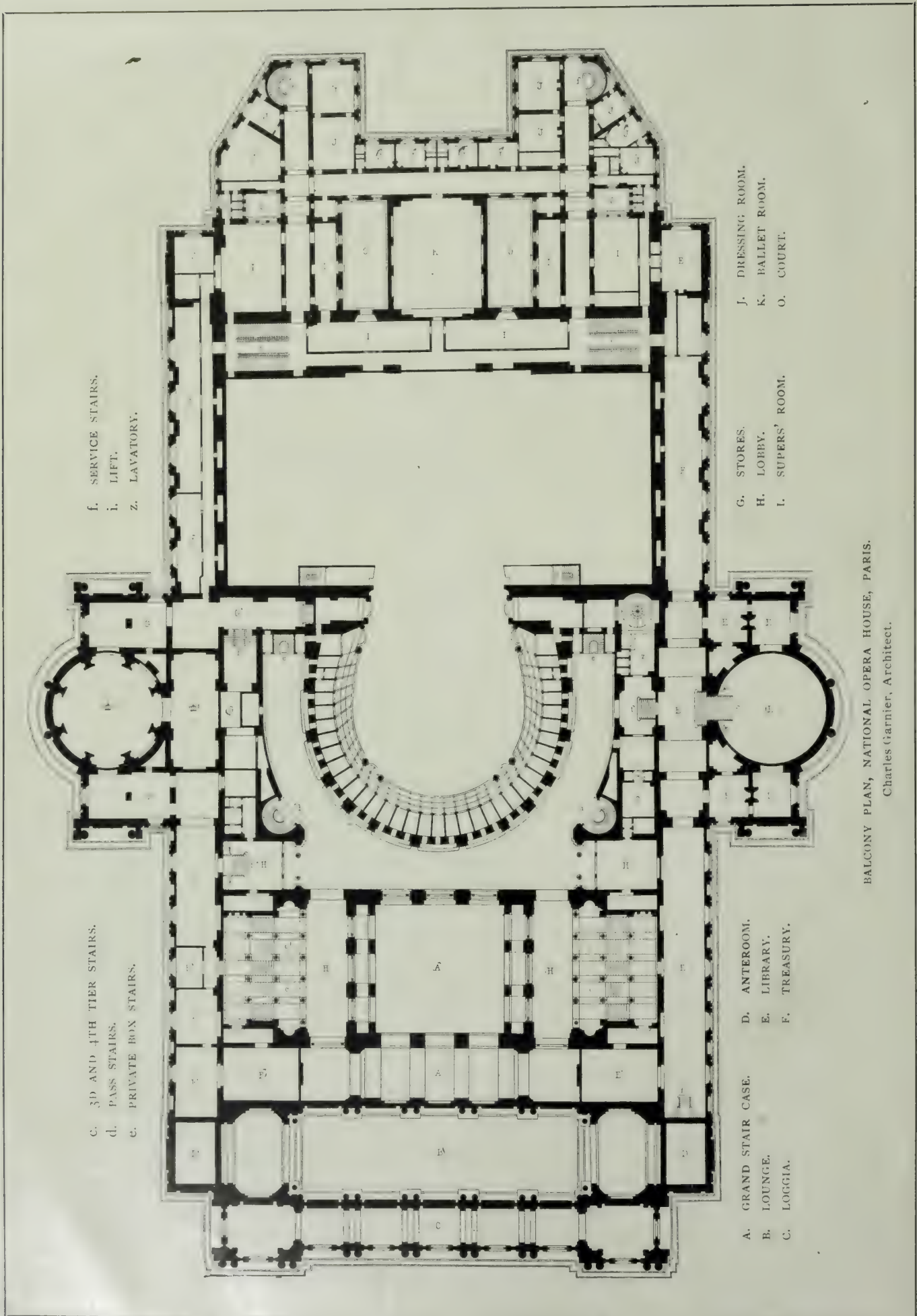
The arrangement of the aisles in a theater can have a good deal to do with the success of a house. They should be so disposed that, as far as possible, the actors on the stage would never be looking the length of an aisle, but would always have before them a sea of faces. For this reason it is never well to have a center aisle, but rather a central row of seats, and, for the same reason, it is better that the aisles should be curved rather than straight in plan. Occasionally, in a very wide house, it is desirable to carry certain aisles down only part way to the stage, as, if they are all extended, there would be hardly anything left of the first few rows. It is not a desirable arrangement, how-

ever, to plan any aisle with a dead end, on account of the confusion which is pretty sure to arise in connection with the ushering.

The planning of proscenium boxes is a difficult task. Seldom are they of any practical value at all. Though they are nominally the highest-priced seats in the theater, the boxes are more often given away by the management than sold, as they are really the poorest seats in the house. If the boxes are brought out in line so that the occupants



DESIGN FOR A THEATER.
By Willis K. Polk, Architect.



BALCONY PLAN, NATIONAL OPERA HOUSE, PARIS.
Charles Garnier, Architect.

thereof get a really good view of the stage, there is necessarily a sacrifice of seating space on the floor of the orchestra. For theaters where light dramas or comedies are played, where most of the stage action is toward the front and near the center, boxes have a very legitimate use and can be swung back quite far on either side in plan. But for a combination house, where the action takes place all over the stage, it is impossible to hope that the boxes will be much more than architectural ornaments, and as such they are best treated. The most common arrangement is to consider the boxes as part of the stage setting, carrying the finish around the curtain opening out to the front of the line of boxes as a proscenium and treating it as a huge frame for the setting of the stage. By this treatment the ornamentation is concentrated about the stage opening, and the balance of the house can be treated in a very simple manner. This scheme is exemplified by the Colonial Theater in Boston, which can serve as representing the type. On the other hand, the Majestic Theater in Boston shows a very successful attempt to treat the auditorium as a whole and the proscenium as a part of the auditorium rather than as a mere framing for the stage. The line of the boxes and the curtain opening are carried clear out to the back of the gallery, and the auditorium is treated like a huge megaphone architecturally designed and embellished. In the Auditorium Theater of Chicago a somewhat similar treatment was carried out very successfully for a theater which is one of the largest in the country. It would seem as if the scheme of treating the auditorium as a unit and tying the auditorium and the curtain opening together were the proper one, but as a matter

of fact in most of our theaters the boxes and the general proscenium treatment are considered as simply forming a frame for the stage setting.

The boxes are usually arranged in three tiers, one above the other, and in not less than two rows, measuring out from the curtain. Each box is usually assumed to accommodate five chairs, and additional box space is often secured by the continuation of the lines of the balcony and gallery on the sides to the proscenium, as was very cleverly worked out in the Castle Square Theater, Bos-

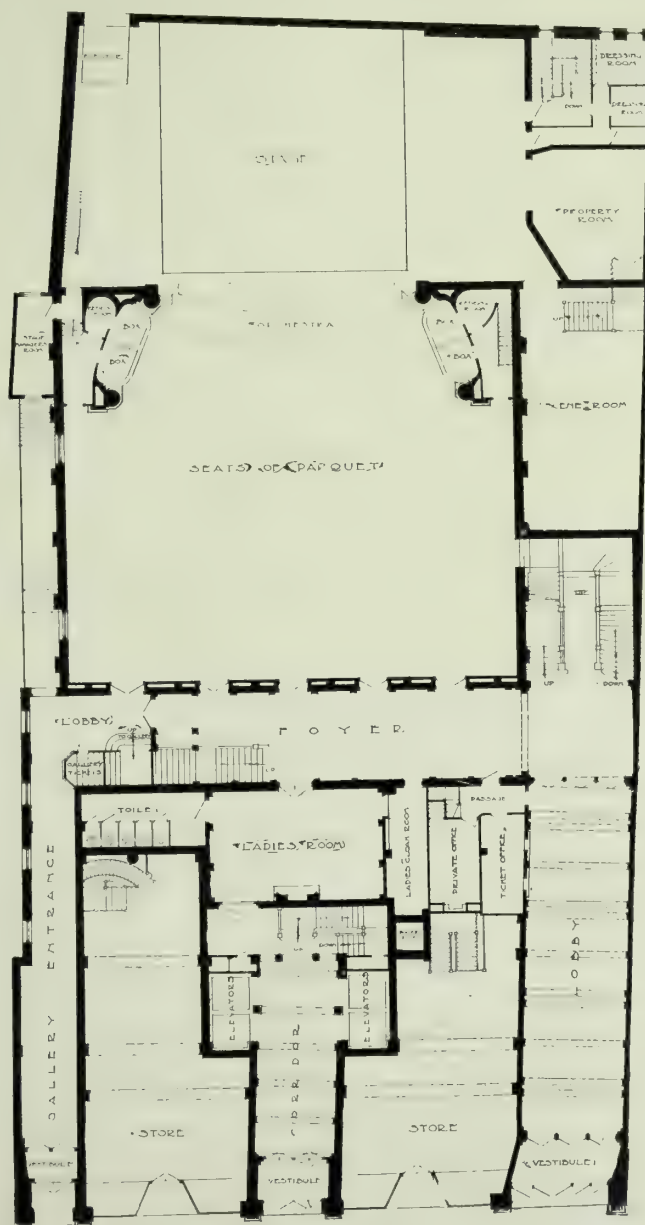
ton, the outside boxes nearer the gallery or balcony being usually termed loges. The introduction of such loges serves very often to break in the most pleasing manner the hard lines of the balcony and gallery fronts and offer very convenient architectural opportunities to the designer.

Where the space permits it is quite usual to build the boxes rather shallow, with a small anteroom behind each, the boxes being reached from a corridor at the rear in

which is a staircase connecting the different levels. Some managers, however, have found that small boxes seating not more than five each are not profitable. In the Alhambra Theater at Harlem, New York, as originally built, there were double rows of boxes on each side, preceded by small anterooms and with solid partitions between them. Subsequently each tier was thrown into a single box, the partitions taken away, all of the anterooms dispensed with, and the whole space on each level thrown into what was termed an omnibus box, seating some twenty or thirty people. It was found under those conditions quite easy to sell the seats at a price a trifle higher than the ordinary orchestra chairs, whereas in the boxes as they were before it was not always easy even to give the seats away. In estimating the seating capacity of the house, however, it is well not to take much account of box possibilities. In the New Amsterdam Theater, New York, the boxes were reduced to the lowest possible minimum and treated in a delightfully quiet architectural manner, the lower boxes being omitted entirely, thereby permitting a solid base to the proscenium, with a greatly enhanced architectural effect.

In order to improve the sight lines of the boxes, the

box nearest the stage in each tier is dropped slightly. This difference of floor level between the two rows is very hard to treat successfully. In some theaters it is masked by making the railing on the same level throughout towards the center of the house, the stepping up being behind the rail, as in the Colonial Theater. In the New Amsterdam the difference in level is frankly accused in the design, the two boxes being quite distinct in their treatment, while the box in the Colonial has the appearance of a single compartment, but is really divided into



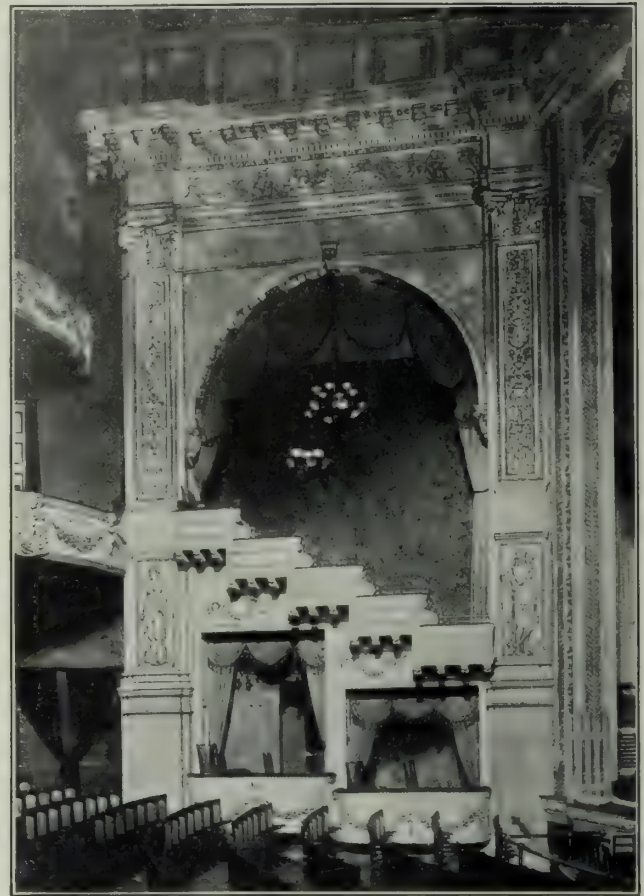
PLAN OF ORCHESTRA FLOOR, COLONIAL THEATER, BOSTON.

C. H. Blackall, Architect.

two portions by a low railing which can be removed when it is desired to throw the whole space into one box. Of course the wider treatment is an easier one and gives a little more liberty in the renting of seats.

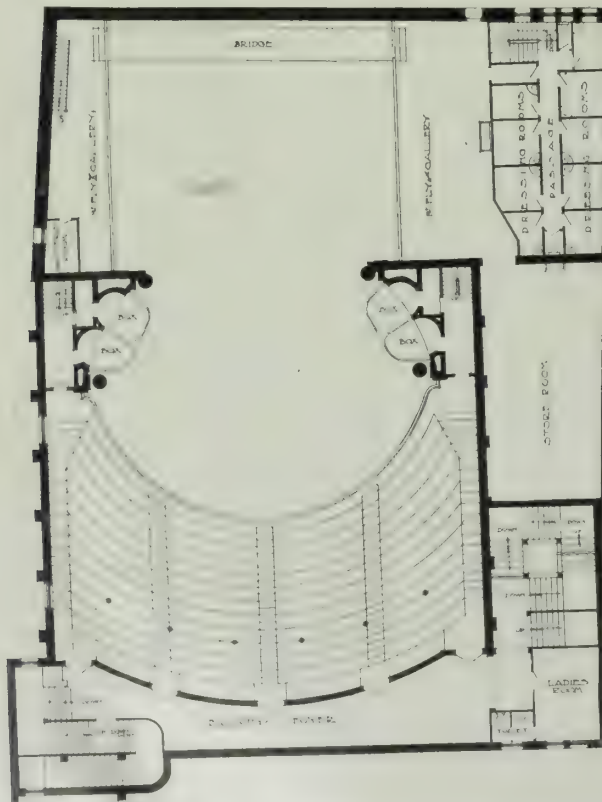
The arrangement of the boxes in the Majestic Theater, Boston, is a modification of the box scheme. The seats are spaced facing the stage, the floors of the successive rows are stepped up, and as this theater is quite a narrow one, the boxes command a fairly good view of the stage. A still different treatment was adopted in the Bowdoin Square Theater, Boston, in which there are two boxes in the lower level and what is termed a loge above, arranged in successive steps like a balcony, the steps all facing toward the center of the stage and each accommodating three or more seats. It is very difficult to treat a proscenium of this sort in a successful architectural manner, and it is only one of the many attempts which have been made to render boxes of some financial value. It cannot be said to be very successful otherwise.

The "standee" is a feature of the American theater and has to be recognized as such. The so-called standing-up space is found in nearly all our theaters in one form or other, although the letter of the laws in many of our cities prohibits any persons from standing in any aisle or passageway about the theater. The usual custom is to allow a space not less than six feet wide behind the rearmost row of seats, separating the seats from the stand-up space by a solid rail four feet six inches high, covered with plush, upon which the "standees" can rest their elbows without deranging the hats of the audience. In the New Amsterdam Theater the foyer and the standing-up space are treated as one, but more commonly the foyer is separated entirely from



PROSCENIUM BOXES AND LOGE, BOWDOIN SQUARE THEATER, BOSTON.

C. H. Blackall, Architect.

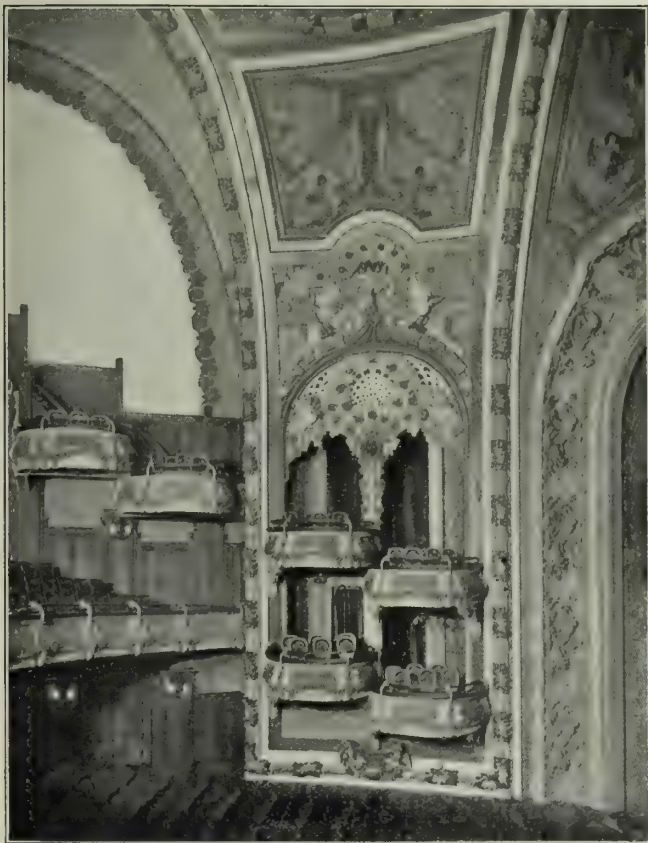


PLAN OF BALCONY FLOOR, COLONIAL THEATER, BOSTON.

the auditorium, both by custom and by law, by a solid wall.

Many theaters have been planned with what is called an orchestra circle, consisting of rows of seats towards the rear of the house, arranged on a different radius from the main seats of the orchestra, these rear seats being carried clear around the sides and often raised slightly above the level of the rest of the floor. This is exemplified in the Madison Square Garden Theater, New York. It is a device which is purely superfluous, introducing a confusing element into the plan, and is entirely uneconomical of space, as the rows of seats at different radii always come together awkwardly. The seats in the orchestra circle are usually sold for less than the seats nearer the stage, but in practice it is better to have all the seats on the floor struck from the same radius and the price can then be adjusted according to the attraction which is at the house, with less inconvenience to the spectators and to the management.

In stage parlance the word "gallery" is used to designate the uppermost tier, the word "balcony" being applied to the first tier above the orchestra and to intermediate tiers, if there are more than three levels in the house. The usual custom is to have only an orchestra, a balcony and a gallery. In the European houses it is almost the rule to plan the balcony in a horseshoe shape so that the spectators at the sides of the house are always looking at each other and often looking away from the stage. Such a plan was adopted in the Boston



PROSCENIUM BOXES, NEW AMSTERDAM THEATER, NEW YORK.
Herts & Tallant, Architects.



PROSCENIUM BOXES, MAJESTIC THEATER, BOSTON.
John M. Wood and John Galen Howard, Architects.



PROSCENIUM, COLONIAL THEATER, BOSTON.



PROSCENIUM BOXES, CASTLE SQUARE THEATER, BOSTON.

Theater and in many of our early constructions, but is seldom met with to-day. The extreme is shown in the Studebaker Theater in Chicago, where the seats of the balcony and gallery are parallel with a certain line. The more common arrangement, however, is to plan the balcony on a curve centering a little back of the curtain line, and the gallery on a curve centering about opposite the center line of the boxes. Of course these centers are modified very greatly by the sight lines and by other conditions.

ON the sixty-six hundred elevators that pierce New York's six billion dollars' worth of realty the vertical passenger traffic is now greater than the horizontal railway traffic, declares an official in the Building Department who has "figured it out." That the elevator travel exceeds that of the surface, elevated and subway lines combined is, at first view, amazing; but the statement is plausible when it is known that the number of passengers taken up and down in one day by the elevators of the Park Row Building alone is greater, by actual count, than the average number of passengers carried in a day on the entire street car system of Nashville, Tenn. In the new Metropolitan Building there will be a straight lift of one-ninth of a mile.

A VERY pretty product has just been put on the market in France in the shape of tiles for wall-linings, composed of bits of mother-of-pearl, embedded in a hard cement, very much like Keene's cement. The cement may be either white or colored. Apparently the tiles are made by mixing bits of shell, in the natural condition, with the cement, which is then cast into the shape of the tiles and polished on one side, after the ordinary manner of polishing marble. By this process the dull outer covering of the bits of shell is removed, and each piece appears in beautifully varied and iridescent colors. This "mother-of-pearl mosaic," as the manufacturer calls it, is by no means expensive. With duty and freight added the cost here would be not far from that of ordinary Italian marble wall-lining, while for certain purposes it would be far more sparkling and beautiful.

Brickwork Details.—II.

BY HALSEY WAINWRIGHT PARKER.

IT is a natural consequence of admiration for work done in the past that it should form the inspiration for modern work and that examples of treatment of brickwork in North Italy, Spain, Germany and England, during the periods when brick was used in preference to stone, should form antecedents for similar factors in recent buildings.

Not only is this the case because of the intrinsic beauty of the details themselves, but also because in



TELEPHONE BUILDING, ROCHESTER, N. Y.
J. Foster Warner, Architect.

most cases ornamentation on brick is based upon construction in brick, and there is naturally strong resemblance between details of identical structure notwithstanding efforts to create individuality in design. There is, therefore, less justification in a criticism of modern work as being an imitation or a plagiarism in brickwork than in most structural detail. Take, for example, the Telephone Building, Rochester. It is an excellent façade of a small building, in which utilitarian conditions force variety of openings and make absolute



THE MUSEUM, UNIVERSITY OF PENNSYLVANIA.
Cope & Stewardson, Frank Miles Day & Brother and Wilson Eyre,
Associate Architects.

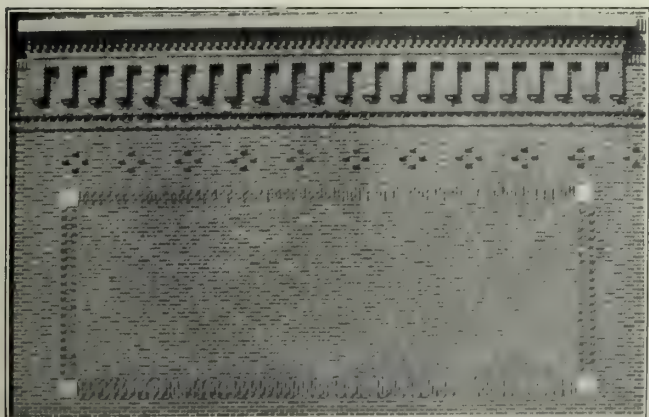
symmetry impossible. Dissymmetrical balance has, however, been admirably obtained, and has added a charm to the whole which resembles the frank, direct recognition of various factors which is present in mediæval work before the advent of the schools.

In obtaining this balance different details are used



THE MUSEUM, UNIVERSITY OF PENNSYLVANIA.
Cope & Stewardson, Frank Miles Day & Brother and Wilson
Eyre, Associate Architects.

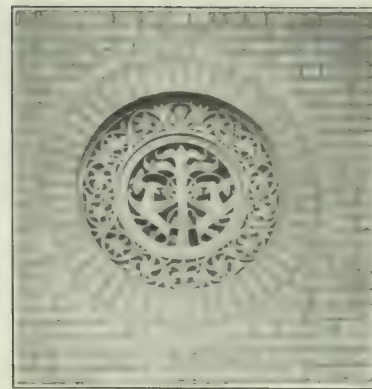
around the openings and elsewhere, many of which are reminiscent of the brickwork of Bologna. The terminations at the ends of the cornice are Ghibelline Parapet motives,—the cornice is suggested by that of one of the palaces,—and in the first story the different arch treatments, each thoroughly characteristic of the character of the opening, have antecedents—especially the pointed arch with tympanum and segmental arch below, which is a motive frequently used in Siena. Yet these are not plagiarisms, they are the natural development of brick structure, and the choice of the arch detail as defining



DETAIL, CASINO BUILDING, BROOKLYN.
Boring & Tilton, Architects.

the character of each opening is excellent. The main entrance is dignified more than the window openings of the same width by a double arch, and the opening for teams is made entirely different from the others in its arch treatment, which, while sufficiently important, has less delicate detail. The enrichment of detail toward the top of the façade is also well considered, and the whole design, while detailed with reminiscent factors, has marked individuality.

The Museum, Philadelphia, is interesting from the effect gained by simple means,—especially in the patterns in the tympana of the arch and in the wall base. The



DETAIL, WALL OF MADISON SQUARE
CHURCH, NEW YORK.
McKim, Mead & White, Architects.



ST. JUDE'S CHURCH, BROOKLYN.
Lord & Hewlett, Architects.

principal entrance of the same buildings has most carefully studied decorative bands of brick design, many of which are original.

The contrast of designs based on horizontal and vertical lines and those with diagonal lines is well considered.

St. Jude's Church is of a bolder type, the tympanum pattern and the cornice being especially interesting.



SEVER HALL, CAMBRIDGE, MASS.



H. H. Richardson, Architect.

Sever Hall has brick associated with molded brick and terra cotta, and the brickwork is distinctly better and in better scale than the ornamental terra cotta. The corner rolls and vertical diagonal courses are well contrasted, and this building, which was a noted one of its time, could with advantage have had the ornamental terra cotta eliminated, as is indicated by the bow window in the same building.

The Casino, Brooklyn, has an excellent treatment suggesting paneling on a flush surface, which appears to be entirely original. Recessed panels in brickwork are very apt to be crude in effect, and a border carried around a surface which has a different bond or texture pattern from that of the main wall is to be welcomed in design. The pattern within the panel in this case is obtained by the insertion of brick of slightly lighter tone, but it is the border which is especially ingenious. The cornice also has good contrasts in its detail. This brickwork resembles the Spanish examples more than it does those of North Italy, the forms being in rather more robust scale and the repeats farther apart than in the Italian work.

The central gable of the same building has adopted a distinctly Spanish motive of brick detail, *i. e.*, that of projecting a single header in regular isolated repeats in the wall. It is difficult to imagine a reason for such a

treatment. The units are too far apart to produce texture and too small to create salient detail.

The effect is that of small shadow spots which tend to make the surface spotty without affording any increased interest in the design. This example has also an introduction of pieces of stone, as keystones, voussoirs, etc., which go far to detract from the dignity of its general

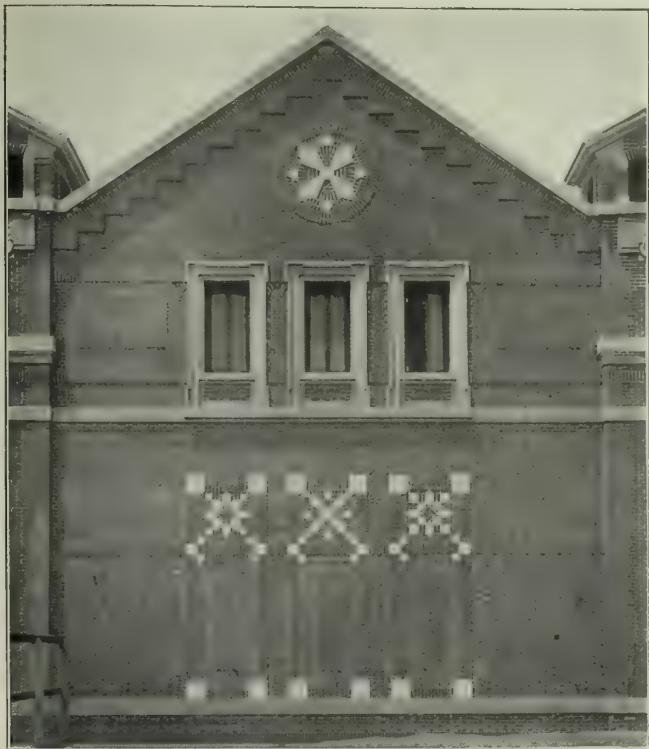
mass. Contrasts of this character are found in Dutch work and on some of the Georgian work in England, and, while giving certain piquancy to the design, are certainly out of scale with the texture of the brick surfaces. As has been stated, brickwork is a mosaic with the horizontal joints dominant. Its scale is set out alone by the patterns used, but chiefly by the size of the units, and it is a manifest mistake to insert in a mosaic of small units a unit of much larger scale and of different tone without a gradual approach to that unit from the brick surface by intermediate detail. The sudden transition from brick texture to isolated stone keystones or voussoirs is staccato in its effect, especially



SEVER HALL, CAMBRIDGE, MASS.

if the contrast of tone or color in the large units still further accentuates its difference in scale.

The chief criticism of this type of design is that the façade becomes uneasy from lack of general tone. The Loft Building, Philadelphia, is, on the contrary, kept in tone throughout, even the pattern in the frieze, which is



BATH HOUSE, NEW YORK.
Stoughton & Stoughton, Architects.



WETZEL BUILDING, NEW YORK.
Hill & Stout, Architects.

large in scale, being kept in harmony with the finer forms of this terra cotta by a very nearly even tone and color.

This frieze pattern, which is an interlocked parapet pattern, is very effective. The Store Building, Philadelphia, shows the treatment of the soffits in brickwork in this case. The pattern is that of the Byzantine guilloché of alternate large and small circles with broad borders. The scale of this pattern built in brick units is necessarily large, and therefore needs to be strongly held upon either edge, and this design could be improved by stronger treatment at both sides of the soffit pattern.

The slightly coved surface of the face of the arch seems an affectation in brickwork. It necessitates a majority of headers in the arch surface which neutralizes the value of the radial lines and weakens the effect of the arch. The upper part of the same building has interesting segmental arches over the grouped windows in which ornamental headers are associated with common brick, and the definition is given by broad joints.

The artistic value of brick surfaces is in their tone and color, and the texture produces tone, first by the

joints, second by the surface of the individual bricks. Of these different factors, that of the individual brick surfaces is often misapprehended. There is frequently an impression that a brick with a fine, even surface and accurately struck edge will produce a finer wall than one of more uneven character. As a matter of fact this is not the case. In judging marble or glass mosaic, for instance, those which are built up of exact squares, and in which the joints have no irregularities, never have the life and character of the mosaics in which the pieces vary. The same is true of brick mosaic, and, as in this latter case, there can never be the variety of form that there is in marble or glass mosaic. It is well to take advantage of all possible irregularities which are not deliberate affectations.

The brick, therefore, which have the more granular and rougher surfaces and edges, which, while moderately true are not absolutely accurate,



ARCH OVER MAIN ENTRANCE, STORE BUILDING, PHILADELPHIA.
Price & McLanahan, Architects.



UPPER PART OF STORE BUILDING, PHILADELPHIA.
Price & McLanahan, Architects.



ABELL BUILDING, BALTIMORE.
Delano & Aldrich, Architects.

give better texture for exterior work than the finer varieties. The finer brick can be used in the patterns to define the designs. The rougher brick are also more in harmony with the broader joint which expresses the character of the material and gives life to the surface.

It is not many years ago that praise was given to brickwork in which it was difficult to insert a knife blade between the brick, but the appreciation by architects of the beauty of texture of foreign brickwork has changed the popular conception of good brickwork to some extent. The softening and neutralization of masses of red brick by broad white joints is now well understood. A brick surface in which the joints are a very appreciable area, and the introduction of delicate white outlines in a design, forming a network of white lines, which, at a distance, lightens the tone and color, reducing a hot red to a softer and more delicate tint, near at hand, creates a lace-like pattern on the surface.

The detail of the Madison Square Church, New York, indicates the advantage of the broad joint and the rougher brick in producing texture. The method of increasing texture effect by the introduction of a darker header in the Flemish bond is well shown in the Bath House, New York. This treatment can be easily overdone. The contrast of tone between headers and trimmers need not be great, as there is already considerable contrast produced by the constant recurrence of the alternate sizes.

In the Wetzel Building, New York, which is a definite reminiscence of Venetian work in marble translated into brick, headers only are used, the patterns being obtained by contrast of tone or of color, or both, in the brick. This treatment, like the preceding, can be

easily exaggerated. If contrast of color is shown, but slight contrast of tone is necessary. Usually dark joints are too set and rigid in their definitions if the brick is light in tone; it is well to keep a dark joint in similar tone to the brick but in different color from it.

The detail of the Abell Building shows the use of the long or so-called Roman brick, which is always effective in arches, and produces a more finished appearance in wall surfaces than does the common brick.

Sever Hall, again, has the American bond with a heading course every eighth course, but the stretchers are somewhat longer than the ordinary brick. The belt course is unusually effective.

The value of brickwork is largely dependent upon the width of joint and color of the mortar used. Broadly

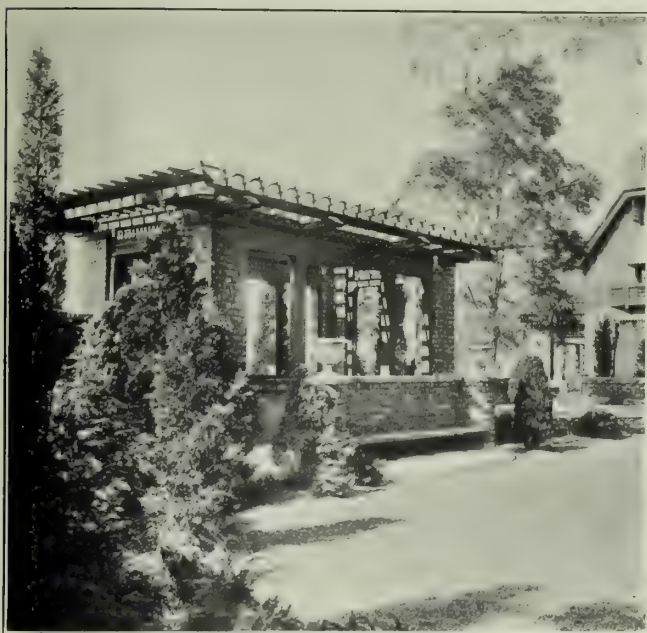
stated, a brick of smooth, even surface ought never to be laid in rough mortar and with wide joints; while one of rough texture is largely dependent upon wide joints and character of mortar for its best effects. An unintelligent use of color in mortar too frequently ruins a good piece of brickwork.



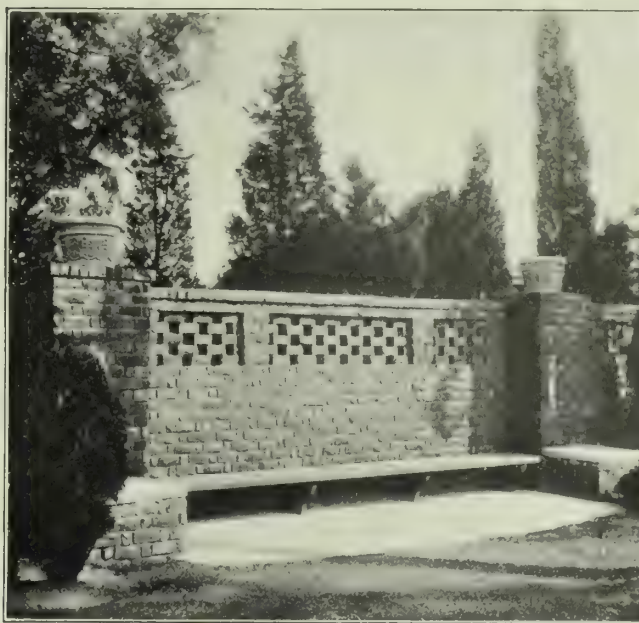
CENTRAL GABLE, CASINO BUILDING, BROOKLYN.



UPPER PART OF LOFT BUILDING, PHILADELPHIA.
Cope & Stewardson, Architects.



DETAIL OF PERGOLA IN GARDEN.



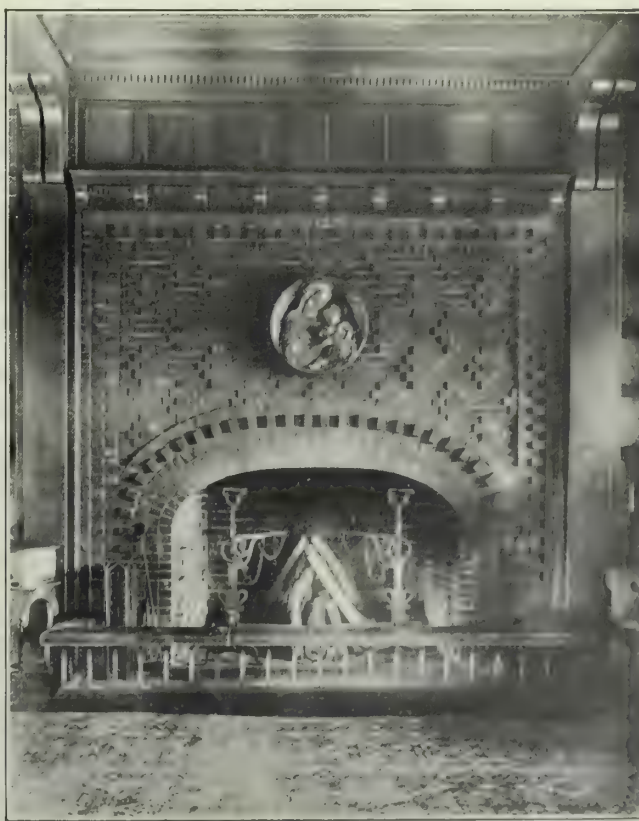
DETAIL OF BRICK WALLS AND SEATS IN GARDEN.

DETAILS
HOUSE AT LOCUST VALLEY, LONG ISLAND, N. Y.

GROSVENOR ATTERBURY, ARCHITECT.



DETAIL OF BILLIARD ROOM GABLE AND NORTH
ENTRANCE TO HALL.



FIREPLACE IN LIVING-ROOM.



INTERIOR VIEW FROM MAIN TOWER HALL TOWARD LIVING-ROOM.



DINING-ROOM.

HOUSE AT LOCUST VALLEY, LONG ISLAND, N. Y.

Grosvenor Atterbury, Architect.

Some English Brickbuilders.

THE WORK OF H. R. AND B. A. POULTER,
ARCHITECTS.

BY R. RANDAL PHILLIPS.

IT is often urged against an established architect that he works too much in one vein, with the consequence that there are no surprises for us, no new features to look for; we may appraise beforehand what we shall find, and, being able to do so, are to that extent deprived of interest in the work. In pursuing this line of thought, however, we should always bear in mind the fact that an architect is very much the tool of circumstance, governed by practical necessities and by the claims of his client. Moreover, the present is essentially an age of competition; the architect has to fight his way to the front, and in that endeavor he discovers what, in his own particular sphere, is the most successful means. "Success" may

have, of course, a variety of meaning. One calls to mind, for instance, the names of architects who certainly are "successful," but in the majority of cases that indicates work which has most influence on the general public; it is the line of least resistance; the architect has found that a certain thing "goes" and, accordingly, he repeats himself. If he were in a world where no such claims of subsistence existed as they do here, if he always had a free hand to produce what he wished, things might be otherwise; but now, first and foremost, he has to earn a living, and we need to remember that when forming an estimate of his work. Besides, one particular treatment may be the perfect solution of the problem in hand, and, of necessity, every repetition of the problem calls forth the same treatment. An excellent example of this is afforded by the work of some hospital architects. Carefully studying the requirements, they have found that a certain plan best fulfills the conditions, that a certain form of decoration or finish is most appreciated by the patients; and so, as every new hospital is demanded—the same requirements, the same restrictions, though in another district—they repeat themselves; and, viewed from that standpoint, nothing can be said against them. There is, however, a limit to such repetition, and in the work of some well-

known men that limit has been exceeded to such a degree that their buildings cease to be of interest. Especially is this the case with architects who have acquired so large a practice that the incentive to strive after new achievement is no longer present. They have found the way to financial success and no by-path attracts them. The quest is one of comfort, not of fresh conquests; with the result that they are likely to degenerate into the type of "respectable" architect, who, as

one writer puts it, goes impressively to church on Sunday morning with his wife and his family and his silver-knobbed umbrella, returning, none the less impressively, to a terrific smell of cooking at one o'clock.

For newer treatment we must look to the younger men, architects to be, or men already establishing themselves and gaining attention by the vigor of their work. They have all the faults of youth; they are dominated by an enthusiasm which carries them to extremes, but, after

all is said, their work has life in it—the life which the older men had before affluence and ease smothered their energies. It is to these younger men that the future of architecture belongs, and where no such youthful vitality and freshness exists we may be certain that the succeeding generation will be barren of good architecture.

In England to-day there is a growing body of young architects of ability. We see their work in the schools, and the comparison of it with the buildings daily erected in our midst gives hope for the future. These younger men are directed by the spirit of the time—efficiency. They apply themselves eagerly to the problem set down; they study the best of the old work at home and abroad—not in the diletante manner of a hundred years ago, when no gentlemen's education was complete without a dainty knowledge of Palladio, but with a zealous seeking after the essence of things. To them, also, the question of plan calls for whole-hearted

study. We live no longer in a day when houses are built from the outside inwards, when the elevation is the first thing to be settled and the plan made to fit behind it as best it may, but rather when plan is becoming a veritable despot—making the outside of our buildings deficient in proportion and rambling in outline. That defect, however, we must suffer for all the good associated with it.



LODGE TO "HILL CREST," CAMBERLEY.



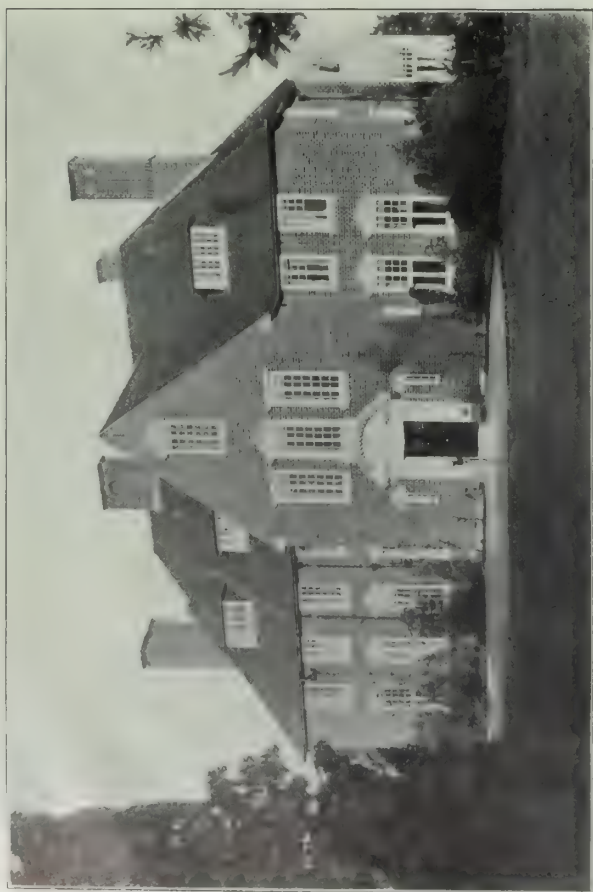
"WOODCOTE," CAMBERLEY.



FROM THE GARDEN.



"LATTON LODGE," CAVERSHAM. PART OF THE BRICKWORK HAS BEEN WHITENED.



FROM THE ROAD.





HOUSE ON DIAMOND HILL, CAMBERLEY.



HOUSE AT CAMBERLEY.



HOUSE AT CAMBERLEY.



"WOODCOTE," CAMBERLEY. WALLS WHITENED ROUGHCAST ON BRICK.



FRONT DOOR, "LLANTWIT," FARNBOROUGH.



"LLANTWIT," FARNBOROUGH. THE BRICKWORK HAS BEEN WHITENED.



HOUSE AT WALLOWFIELD.

Our younger men have the faults of their merits, and we must at least be thankful that such a body of men is leavening the art of architecture.

As members of that younger band of architects, Messrs. H. R. and B. A. Poulter of Camberley, Surrey, call for mention. Their work is here shown from photographs and drawings, which best explain and illustrate the aims of their authors. Almost entirely they are engaged in domestic work, carried out in good brickwork, red tiles and half timber in parts. The brickwork is frankly acknowledged, made to assert itself, varied in surface treatment, with vitrified headers here and there, and of diversified color as the kiln gives, in which connection it may be noted how modern commercial practice seeks after dead uniformity. Without going to the extremes that lead some architects to import into their houses woodwork, "rough from the saw," that conjures up some barbarian working with a pre-historic adze, tiles that look as though some refuse of the kiln had been sprinkled over them, and brickwork so coarse as to be wholly offensive, — without going to those extremes, we may well protest against that uniformity in bricks, tiles and woodwork which manufacturers consider perfection. There is a real charm about good brickwork with variations of surface and color created in the kiln, about tile-work, which, instead of being overspread with one dead flawless glaze, has a play of tint and sheen. There is a growing recognition of this, and, as relative to the present subject, it is the aim of the younger body of architects to foster that recognition. For want of color the accompanying illustrations cannot give the true effect of Messrs. Poulter's houses, and this reference must suffice. It will be seen that some of the houses are finished white, not white roughcast, but brickwork lime-whitened.

In designing their buildings the first step is to collect the fads and fancies of the client, to visit the site and ascertain its possibilities, and then to gather the architectural suggestions from these. Messrs. Poulter are quite opposed to the ordinary idea of drawing a plan regardless of the position which the house is to occupy. They consider the house to be only part of an entire scheme, — like a tree in a landscape, and it is their endeavor, by posi-

tion, form and color, to follow the natural surroundings. From the first they regard their building, not as a plane, but as a solid mass, to be viewed in perspective, and preferably modeled in plaster. The client, of course, not infrequently upsets the final result by insisting on some personal likes or dislikes, against the architects' advice. Messrs. Poulter have not been altogether free from this evil. They have met the type of person who comes with a fixed idea of a house, — three reception rooms, a hall, a skirting around the floor, a cornice around the wall: to be just like "so and so's," though the person in question is invariably unlike "so and so," in habit and taste; and he chooses land on which "so and so's" house could not possibly be built. Nevertheless, they have produced creditable work, even under those conditions. For a precise estimate of their work, the accompanying illustrations must be left to speak for themselves, but the following notes in reference to some of the houses may be given:

"LLANTWIT," FARNBOROUGH. — This house is on the side of a hill, backed by dark trees. The brickwork is whitened. Local conditions (in the fall of the ground) made it desirable to have some of the reception rooms a floor below the main entrance. The fireplaces are a special feature of the interior.



FIREPLACE, "LLANTWIT."

COL. KIRWAN'S HOUSE, CAMBERLEY. — This house is among light trees, so red bricks have been adopted, and as the house is well within the village, a free treatment of eighteenth-century English work was followed.

The brickwork is broken up with tile bands and panels.

"WOODCOTE," CAMBERLEY. — Except for a few building requirements, the architects had their own way to a large extent in the design of this house. They adopted a simple roof of steep pitch, hung with old tiles, the walls being roughcast and whitened because of the trees, so that only small portions of the brickwork are left showing.



COLLINGWOOD PLACE, CAMBERLEY.

Editorial Comment and Selected Miscellany

THE THEATER BUILDING COMPETITION. AWARD OF PRIZES.

THE Jury for the Theater Building Competition awarded First Prize (\$500) to Russell Eason Hart, New York City; Second Prize (\$200) to Charles Romer and Fredrick J. Feirer, associated, New York City; Third Prize (\$100) to Walter Valere de Mari, Sacramento, Cal., and Mention to the following: Edward F. Maher and Hubert G. Ripley, associated, Boston; Joseph McGuinniss and Maurice P. Meade, associated, Boston; George Awsumb, Chicago; Israel Pierre Lord, Boston; Wilfred Arnold Paine, Columbus, Ohio; J. T. Wrinkle and A. A. Blodgett, associated, Boston.

The Competition was judged in New York City, January 25, by Messrs. John M. Carrère, Clarence H. Blackall, William Adams Delano, Francke Huntington Bosworth, Jr.

COMPETITION TO SECURE A GROUP PLAN AND AN ARCHITECT FOR THE WESTERN UNIVERSITY OF PENNSYLVANIA.

THE Western University of Pennsylvania, whose buildings are now scattered in the former city of Allegheny and Pittsburgh, has acquired in the latter city a new site of about forty-three acres near Schenley Park and will at once begin thereon the construction of a group of buildings, intended ultimately to house all departments of instruction.

This project has been placed in the hands of its Executive

Committee by the Board of Trustees of the University.

To secure a suitable plan scheme for this project, the University will hold a competition among architects, under

the terms of a programme prepared by Professor Warren P. Laird of the University of Pennsylvania. The prize of this competition will be the commission to design and supervise the first building to be constructed, that for the department of the School of

Mines, for which a fund of \$175,000 is now available. And it is quite likely that the University will place in the architect's hands also certain other buildings whose construction is hoped for at a comparatively early period.

Furthermore, since it is important that the general plan scheme be carried into execution by its author, he would be the natural and logical selection, under the policy inaugurated, to supervise the erection of future buildings.

The competition will be open to all architects of whose professional standing and ability to execute large work the committee receives satisfactory evidence. Three architects from without Pittsburgh have been especially invited and will be paid \$1,000 each for their services in submitting designs, while to those other three who rank highest in merit will be awarded each a like fee.

Any such payment due the architect awarded the competition will apply on account

of his fee as architect of the building.

The programme will be ready about February 15, and drawings will be called for about April 15. It is intended to simplify the work in every possible way, for it is absolutely essential that the actual construction of the first building be begun by June 1. To facilitate this, the general plan will be regarded as a preliminary study only, for whose subsequent restudy due provision will be made in the programme. The general plan must, however, determine the permanent location of the group comprising the building first to be constructed and competitive designs will comprise the preliminary study of this building.



DETAIL BY NEW YORK ARCHITECTURAL
TERRA COTTA CO.



THE MENTOR BUILDING, CHICAGO.
Howard Van D. Shaw, Architect.
Glaze granite-color terra cotta above first story, made by
Northwestern Terra Cotta Co.



DETAIL BY F. C. BONSACK, ARCHITECT.
Winkle Terra Cotta Co., Makers.

Architects desiring to enter the competition are requested to write for the necessary application forms to Dr. S. B. Linhart, Secretary of the University, 802 Home Trust Building, Pittsburg, Pa.

THE PARKER BUILDING FIRE.

THE engineers and fire experts who have examined the Parker Building in New York, the scene of the latest fatal and big fire, have completed their report to the Fire and Building Departments and other organizations. It appears that the building was of the numerous class called by courtesy "fireproof" or "non-combustible," but which offer little protection to their contents and are damageable all the way from 5 per cent to 90 per cent of their cost value, a class absolutely distinct from the really fireproof buildings of the first class.

Its outer walls were of stone, brick and terra-cotta, its skeleton of cast-iron columns and steel beams and the floor filling of hollow tile. The steel beams were unprotected by tile in their most vulnerable parts,—the lower flanges. So were the girders unprotected; the elevator shafts and stairways opened into every story; iron shutters of an inferior order protected only a few of the windows; the water supply permitted the firemen to reach to only the fifth floor. The building was put up for light office purposes, but was occupied as a manufacturing plant and loaded with machinery and filled with the most combustible of materials; most of the partitions were built upon the wooden sleepers in the concrete filling of the floors. The fire virtually had to burn itself out unchecked. Yet it was not a total collapse, and much of its materials being incombustible, it was essentially a fire of the contents, and it was kept within the building in which it originated.

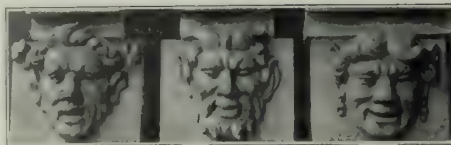


DETAIL BY HERMAN MILLER, ARCHITECT.
Conkling-Armstrong Terra Cotta Co., Makers.

With the water pressure as it was, had that fire been in some of the old-fashioned, all-exposed steel and wooden-joisted buildings, it would probably have been the beginning of another colossal conflagration.

W I T H - O U T

wishing to question the wisdom of courts, it may be observed that the present



DETAIL BY L. A. GOLDSTONE, ARCHITECT.
New Jersey Terra Cotta Co., Makers.

state of the law in California has a certain interest for architects. It appears that, according to the Appellate Court of the State, the late Mayor Schmitz and his adviser, Mr. Ruef, while they were not, perhaps, acting in a praiseworthy manner when they went about of evenings to restaurants and collected large sums of money from the proprietors by threatening to revoke their licenses, were doing nothing legally wrong, for the reason that the Mayor was empowered by law to revoke liquor licenses, and he was not legally culpable in promising to do, in certain exigencies, what he was legally entitled to do, according to his discretion. That the failure to pay him a thousand dollars or so in cash would constitute an exigency in which he would use his discretion to revoke the license of the person or firm concerned was, in the opinion of the Court, a matter of no legal moment to the public, at least, although it was of a certain importance to those who paid the money. Now, the way in which this decision affects architects is that, in California, architects are required to obtain licenses to practise their profession, and are subject to heavy penalties if they engage in practice without them. These licenses

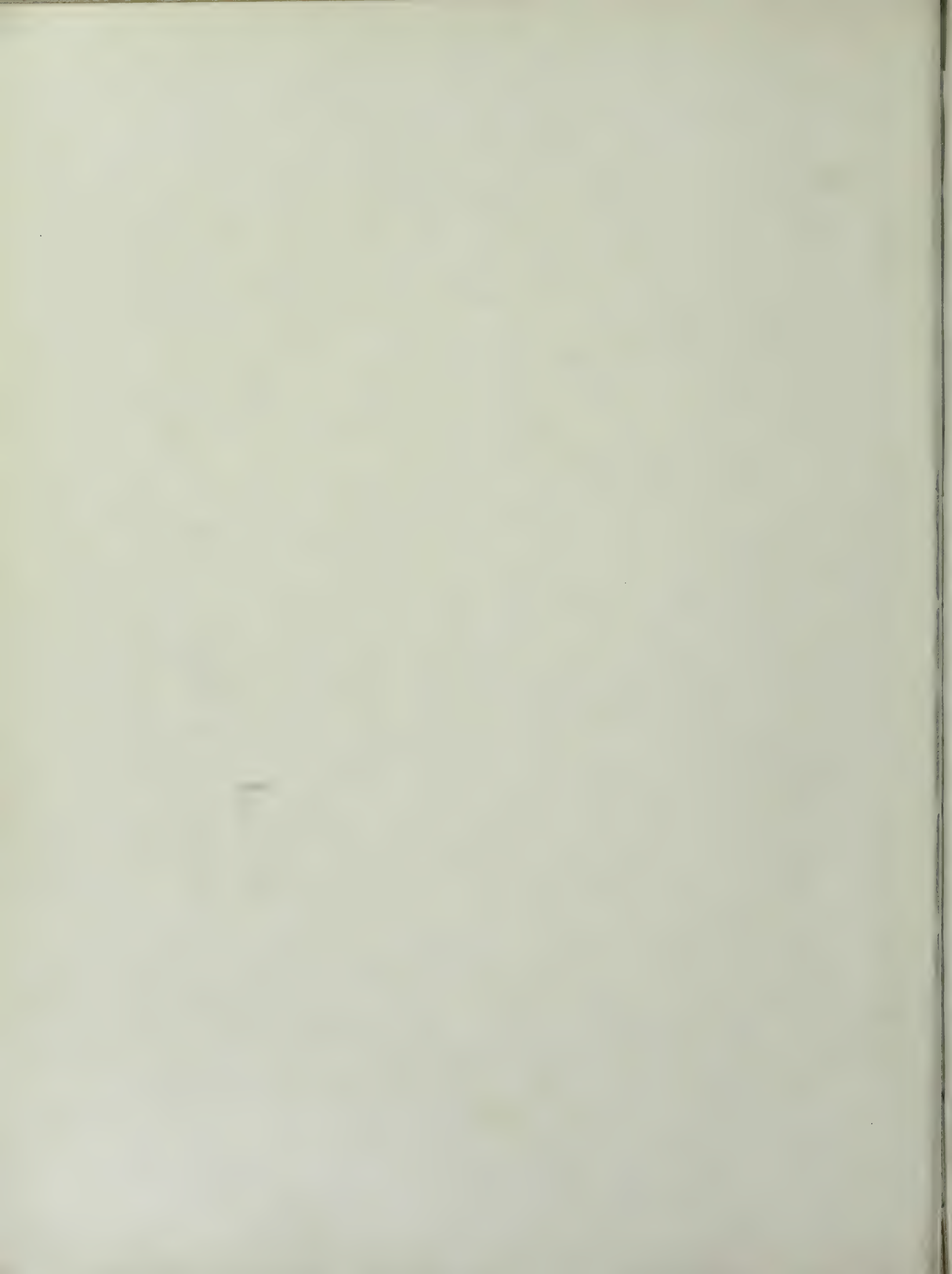
are issued to architects by an Examining Board, which has the power to revoke them on grounds which it deems sufficient. Under the law as it stands at present in California, it appears to be quite unnecessary for the licensing board to inquire into any one else's opinion as to what constitutes sufficient ground for the revocation of a license; and, if it determines that failure or refusal of a licensed architect to pay over a thousand or two dollars whenever the pockets of the members of the Board are empty, or to provide for them a steady income by a percentage of his commissions, is suitable ground for revocation, no one can question or contradict their decision. It will easily be seen how valuable a "plum" such discretionary authority as this may be made in the hands of those who understand how to use it effectively; and architects in California, as well as in other states where similar principles prevail, may do well to provide in time for escaping the consequences of the application of them.



THE LORRAINE APARTMENT, NORFOLK, VA.
Ferguson & Calrow, Architects.
Terra Cotta made by Atlantic Terra Cotta Co.

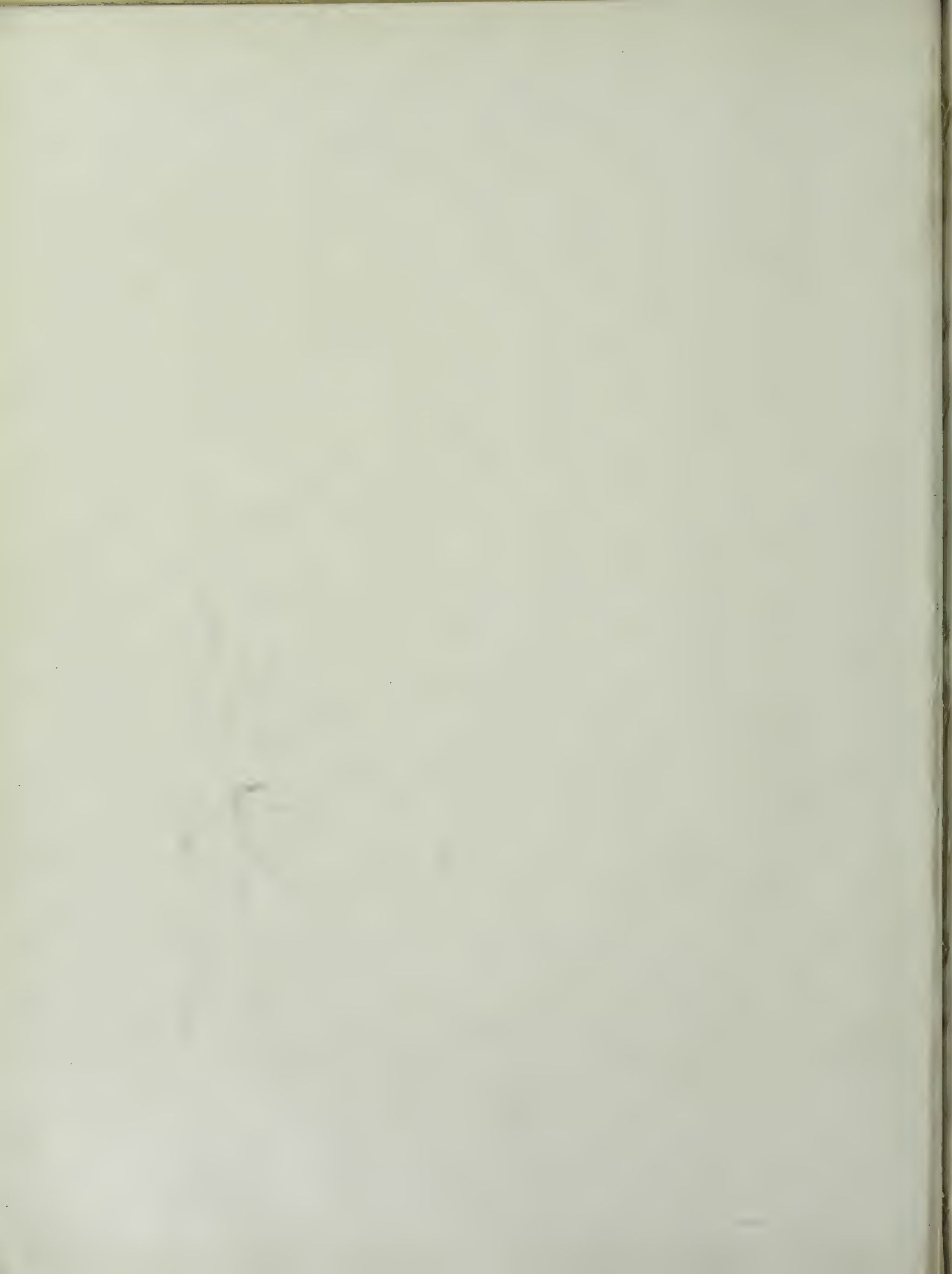


CLINTON HALL, CLINTON STREET, NEW YORK CITY
(FOR THE HOUSING OF SOCIAL ORGANIZATIONS ON THE EAST SIDE.)
HOWELLS & STOKES, ARCHITECTS.



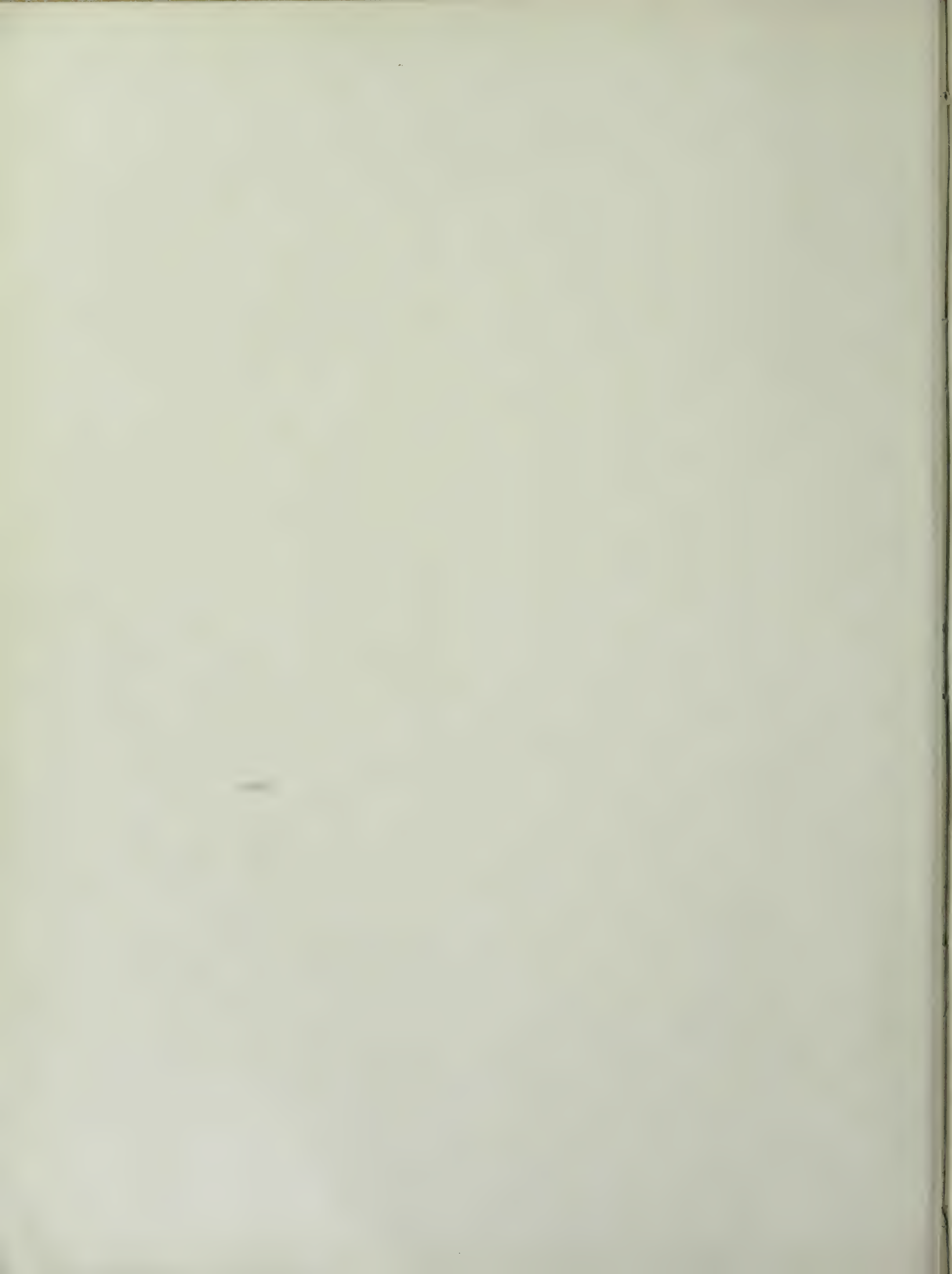


THE MERCHANTS CLUB, BALTIMORE, MD.
SPERRY, YORK & SAWYER, ARCHITECTS.





THE LAMBS CLUB, NEW YORK CITY.
MCKIM, MEAD & WHITE, ARCHITECTS.





DETAIL BY KEES &
COLBURN, ARCHITECTS.
American Terra Cotta Co.,
Makers.

SENATOR HEYBURN failed to have a vote taken on his bill for the purchase by the Government of all land south of Pennsylvania Avenue in Washington and between the Botanic Garden and Fifteenth Street. It was objected that the land was swampy and that as the locality was not destined to rise in value, an act to acquire it was not therefore immediately necessary. The estimated \$10,000,000 required in order to obtain it was probably the real obstacle reckoned with, especially at a time when even Congress must be chary of outlay.

Nevertheless, friends of the movement to beautify Washington will find encouragement in the fact that the Scott bill has passed the Senate. This bill provides for the purchase of a site southeast of the Treasury Department and for the erection of buildings for the Departments of State, Justice and Commerce and Labor on this property. The bill

carries an appropriation of \$3,000,000, and it provides for a commission composed of the Secretary of State, the Attorney General, the Secretary of Commerce and Labor and the Superintendent of the Capitol, which Commission shall report to Congress preliminary plans and an estimate of cost of one or two buildings.

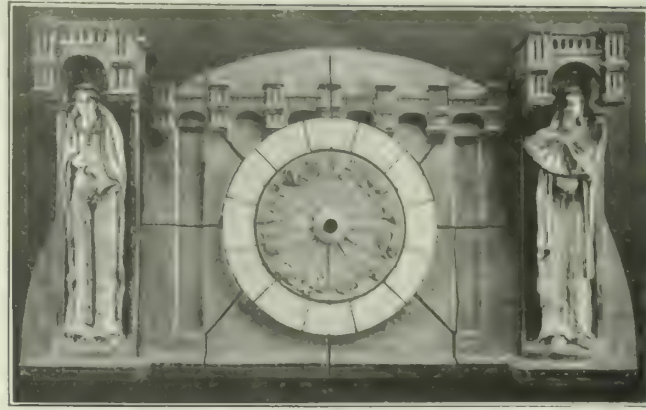
Still another new Federal building about to be authorized is for the Patent Office. Bills providing for it have already been introduced in both the Senate and the House. They contain the items of \$600,000 for the site and \$5,000,000 for the building.



MONTICELLO ARCADE, NORFOLK, VA.

Neff & Thompson, Architects.

Exterior of white mat glaze, with background of green glaze, terra cotta made by Atlantic Terra Cotta Co.



CLOCK IN RATHSKELLER, SEELBACK HOTEL, LOUISVILLE.

Frank M. Andrews, Architect.

John D. Wareham, Sculptor.

The clock is seven feet long and four feet high.

The whole is treated in quiet, low-toned mat glaze gray, gray green, soft brown and yellow faience made by Rookwood Co. The numerals and hands of the clock fit over the circle.

FROM all directions come reports of important concessions on the part of building workmen in the matter of wages. Union officials, naturally, are the last to hear of these reductions; but as a matter of fact, contractors everywhere seem to be nearly overwhelmed with applications from good men for work at wages a long way below the union scale. In most cases the workmen accept the situation very sensibly. If, as there is reason to believe, a general reduction of wages will encourage building, so that they can find employment six days in the week throughout the year at a fair wage per day, they will be a great deal better off than they have been for many seasons past, with a nominally higher wage per day, and employment for only ten or twelve days out of every month. The only danger is that the schemers, who have both money and political influence to gain at the expense of workingmen, will, as they have done so many times before, seize the opportunity of reviving business to make a "demonstration" in their own interest, with the usual result of diverting capital into other channels, and depriving of employment those whom they pretend to represent.

IN GENERAL.

Maginnis, Walsh & Sullivan, architects, Boston, have dissolved their copartnership. Charles D. Maginnis and Timothy Walsh have associated under the firm name of Maginnis & Walsh, while Matthew Sullivan will conduct practice under his



CARTOUCHE BY VERNON REDDING,
ARCHITECT.

North Eastern Terra Cotta Co., Makers.
Carter, Black & Ayers, Agents.

own name. The offices of both new concerns are in the Colonial Building, Boston.

C. D. Parnham, architect, Atlanta, Ga., has been admitted to the firm of Edwards & Walter, the new firm taking the name of Edwards, Walter & Parnham. Offices, Candler Building, Atlanta, Ga.

William T. Warren and William Leslie Welton, formerly with McKim, Mead & White, have formed a partnership for the practice of architecture, with offices in the Title Guarantee Building, Birmingham, Ala. Mr. Warren is a native of Alabama and a graduate of the School of Architecture of Columbia University. Mr. Welton is a Rotch Traveling Scholarship man.



HOUSE AT CINCINNATI.

James Gilmore, Architect.

Roofed with American "S" Tile made by Cincinnati Roofing Tile and Terra Cotta Co.

At the January meeting of The Gargoyles, held at the Hof-Brau Haus, New York City, on the evening of January 21st, designs were submitted in competition for a club pin.

Official reports from fifty-five leading cities of the United States, received by *The American Contractor*, New York, and tabulated, show that building transactions in the cities tabulated reached the enormous total of \$580,492,196. As compared with the figures of 1906—\$667,032,499—this means a loss of \$86,540,303, or 13 per cent. This loss, while widely distributed throughout the country, is chiefly chargeable to a few large cities. Thus, in round numbers, the loss in New York is

forty-three millions; twenty-two millions in San Francisco; eight millions in St. Louis and five millions in Los Angeles, a total of seventy-eight millions for the four cities. Chicago makes a comparatively good showing, with a loss of less than six millions.



DETAIL BY TOWNSEND, STINLE &

HASKELL, ARCHITECTS.

South Amboy Terra Cotta Co., Makers.



CORDOVA FLATS, WASHINGTON, D. C.

Wood, Donn & Deming, Architects.
Roofed with Edwin Bennett's Tile.

NEW BOOKS.

THE BUILDING MECHANICS' READY REFERENCE. Stone and Brick Masons' Edition. By H. G. Richey, Superintendent of Construction, United States Public Buildings. New York: John Wiley & Sons. Price, \$1.50.

In preparing this volume of "The Building Mechanics' Ready Reference," it was the idea or intention of the author to give to the stone and brick mason trades a book that can readily be termed a ready reference; something that will be of everyday use and will assist and enlighten the mason in the various branches of his trade. Tables of various kinds have been used profusely



HOUSE AT DENVER, COL.

Sterner & Williamson, Architects.

Roofed with interlocking shingle tile made by Ludowici-Celadon Co.

for use as reference and for quick computation, and all problems have been illustrated with cuts so the idea presented can be quickly grasped and understood by the ordinary mechanic. No long or roundabout methods for laying out or doing work have been given, but everything has been presented as concise and explicit as possible, and at the same time the explanations and cuts are plain.

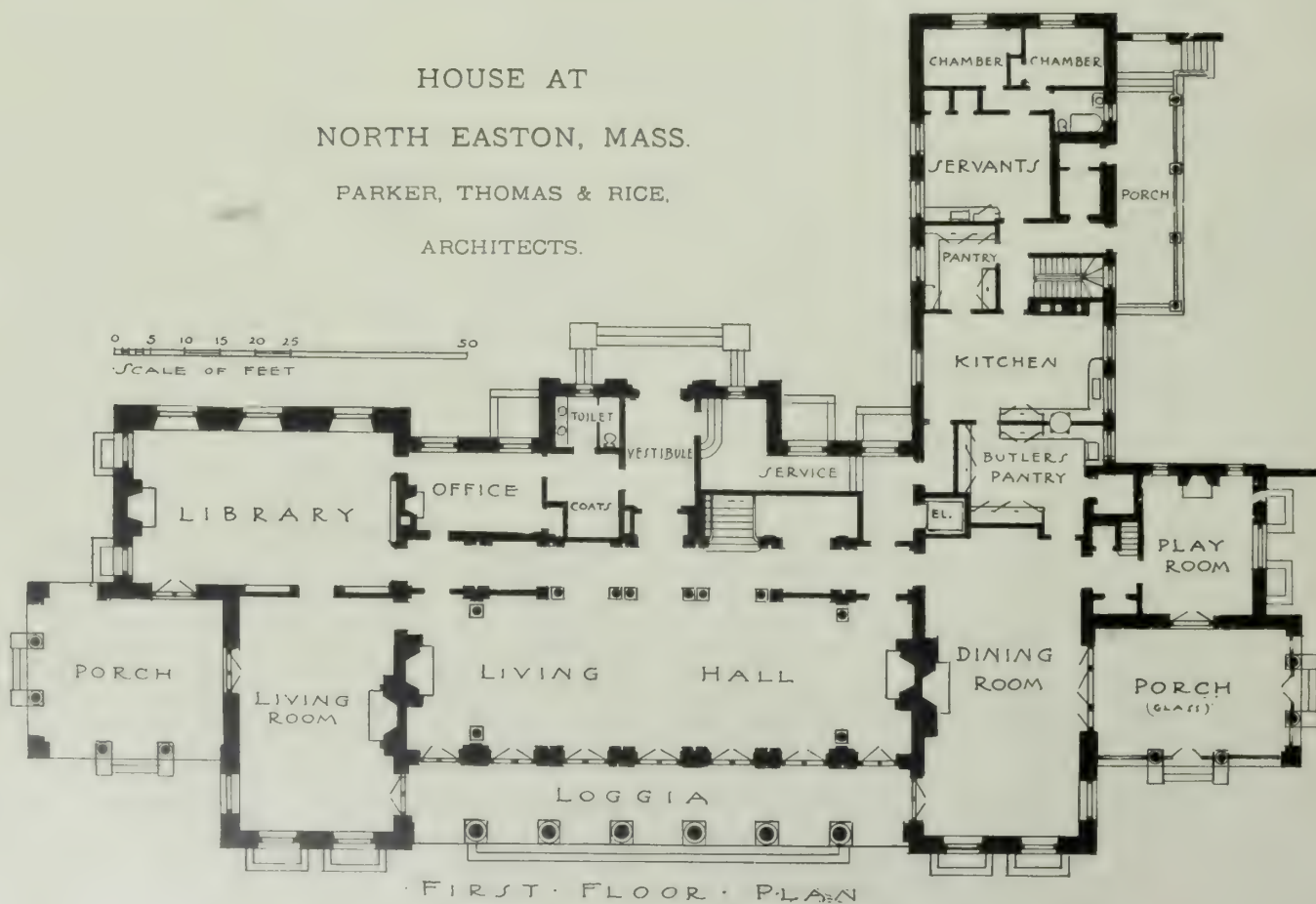
WANTED—By a leading house, a young man (with architectural training preferred), as salesman for face brick and terra cotta in Boston and vicinity. Address, giving age, qualifications, etc., "Brick and Terra Cotta," care of "THE BRICKBUILDER."

WANTED—A young architect of Boston, with the best Eastern training, a winner of competitions, would like to associate with a well-established architect of the West and Middle Southwest. Inquiries may be addressed to "Boston," care of "THE BRICKBUILDER."



TOWARD THE ROAD.

HOUSE AT
NORTH EASTON, MASS.
PARKER, THOMAS & RICE,
ARCHITECTS.



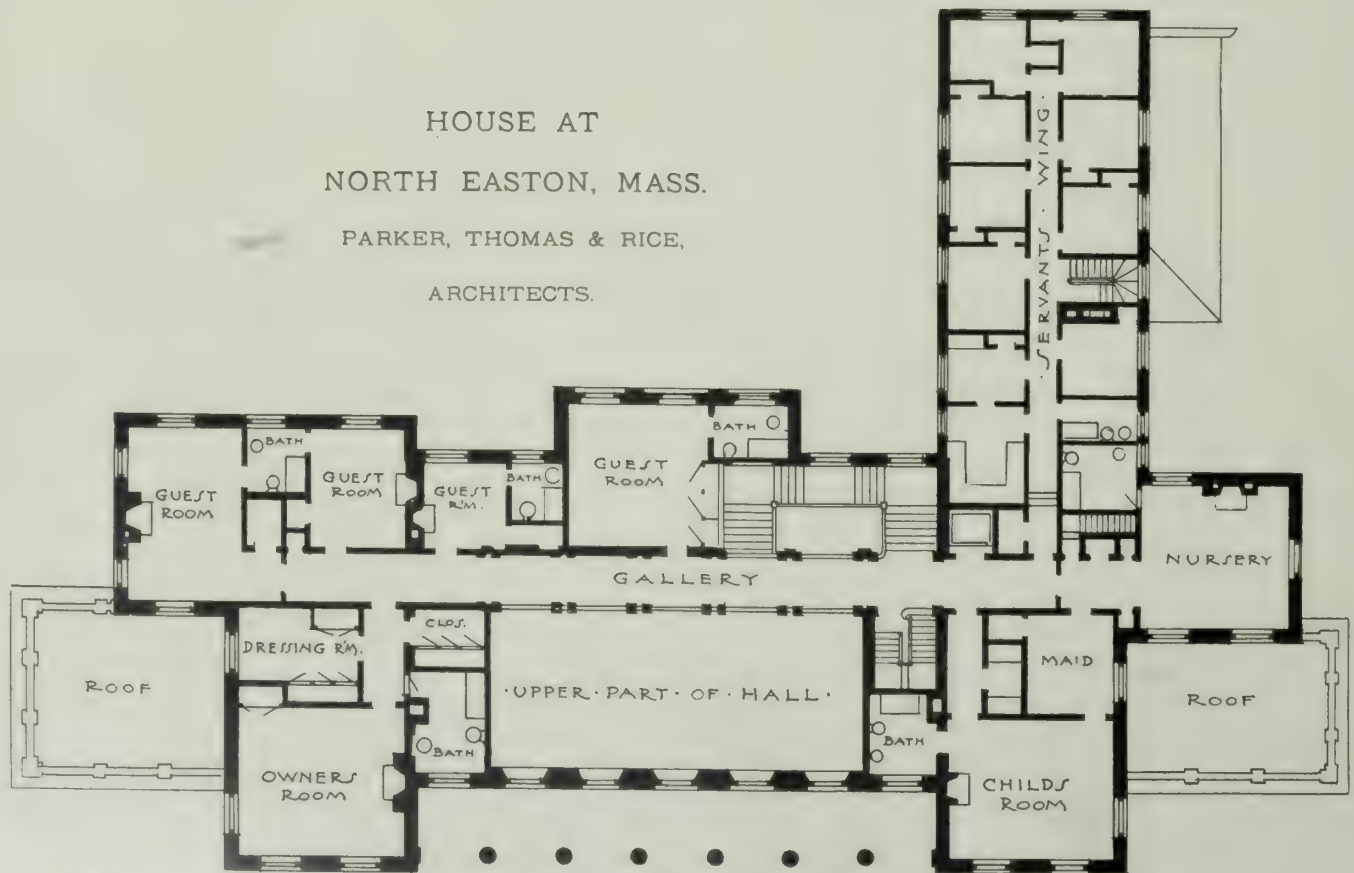


LOOKING ALONG THE LOGGIA.
HOUSE AT NORTH EASTON, MASS.
PARKER, THOMAS & RICE, ARCHITECTS.

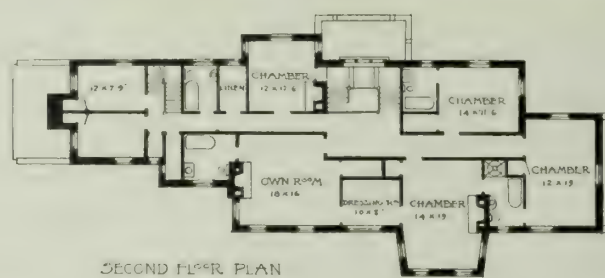
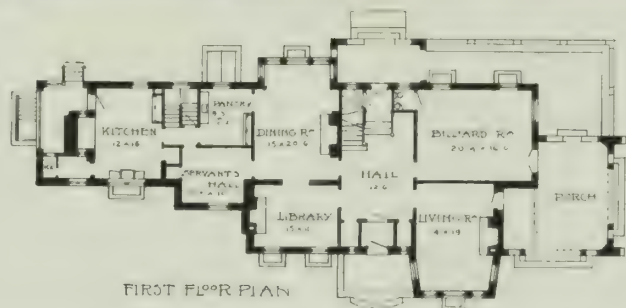


TOWARD THE GARDEN.

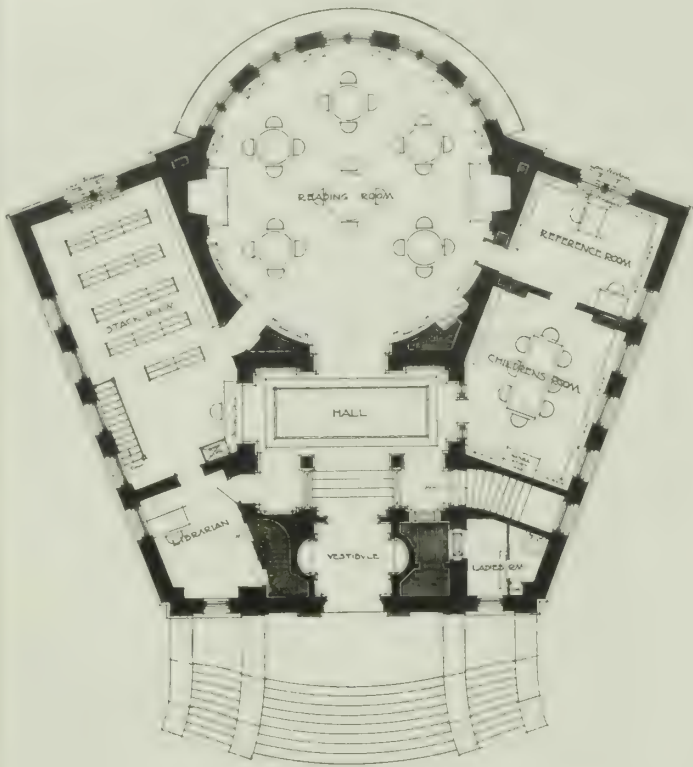
HOUSE AT
NORTH EASTON, MASS.
PARKER, THOMAS & RICE,
ARCHITECTS.



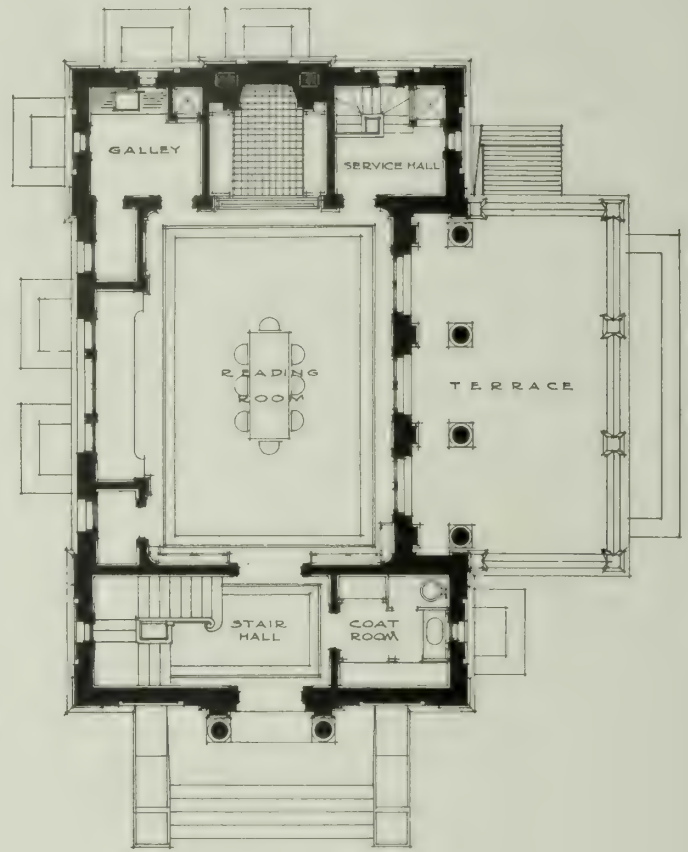
SECOND FLOOR PLAN.



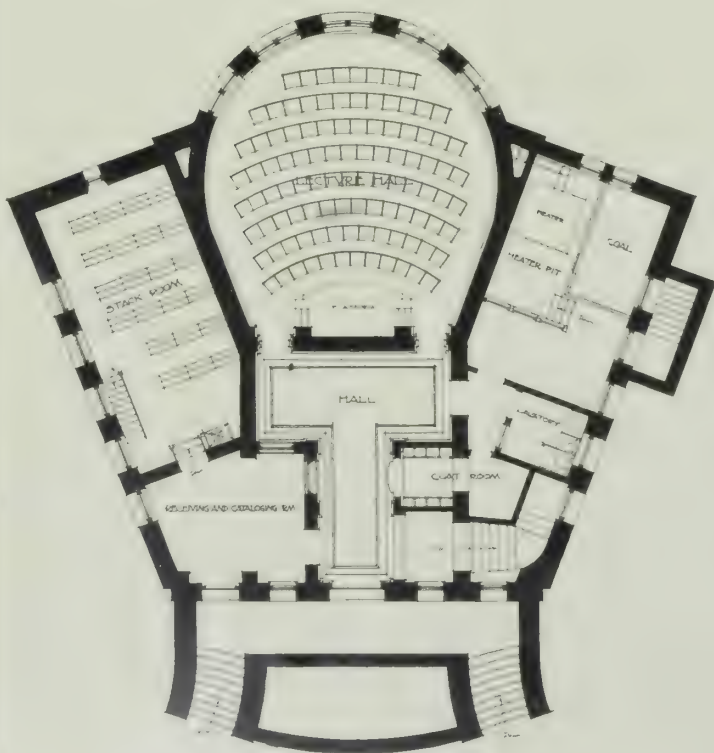
HOUSE FOR ROBERT HEYL, ESQ., WYNNEWOOD, PA.
FRANK MILES DAY & BROTHER, ARCHITECTS.



FIRST FLOOR PLAN.

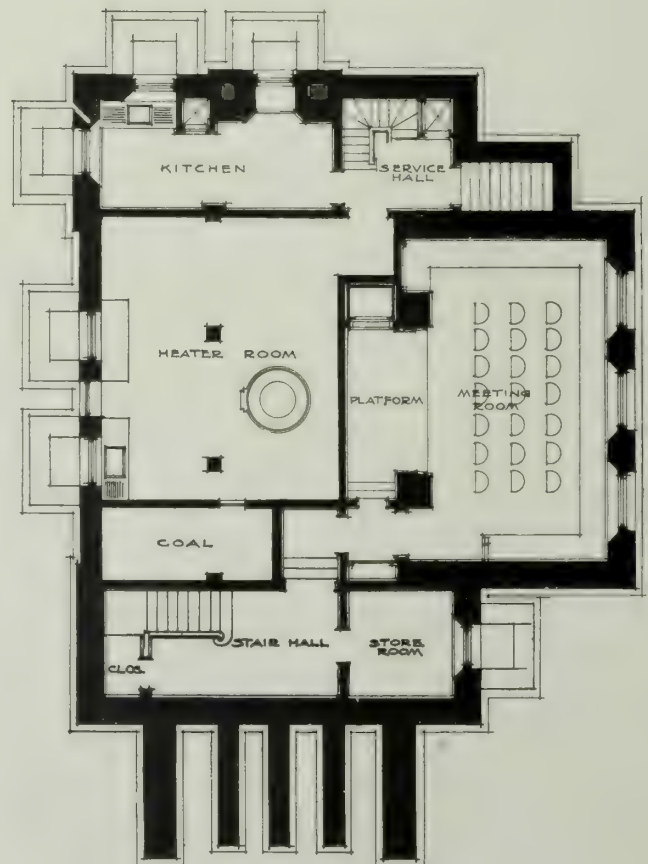


FIRST FLOOR PLAN.



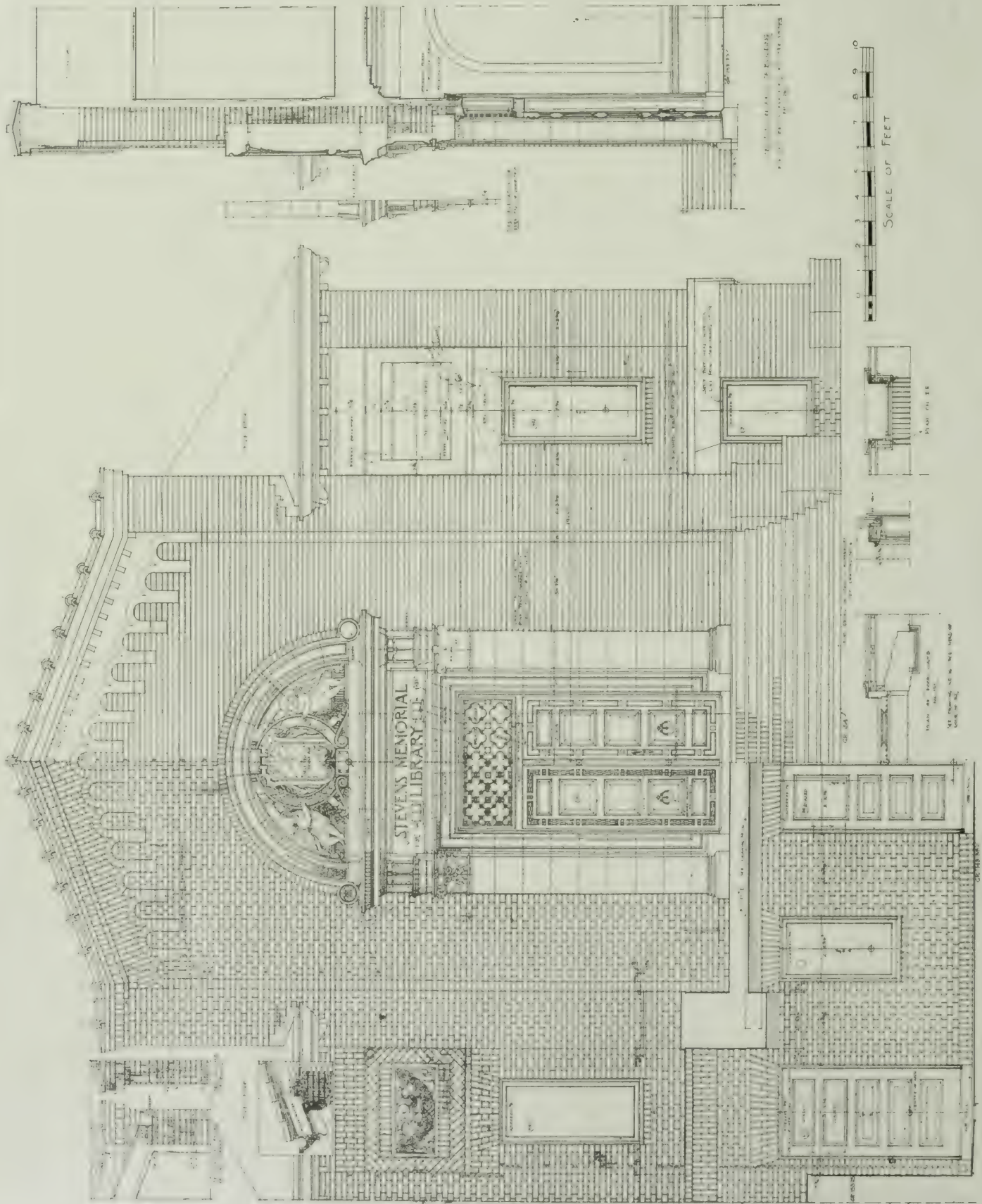
BASEMENT PLAN.

PLANS, STEVENS MEMORIAL LIBRARY;
NORTH ANDOVER, MASS.

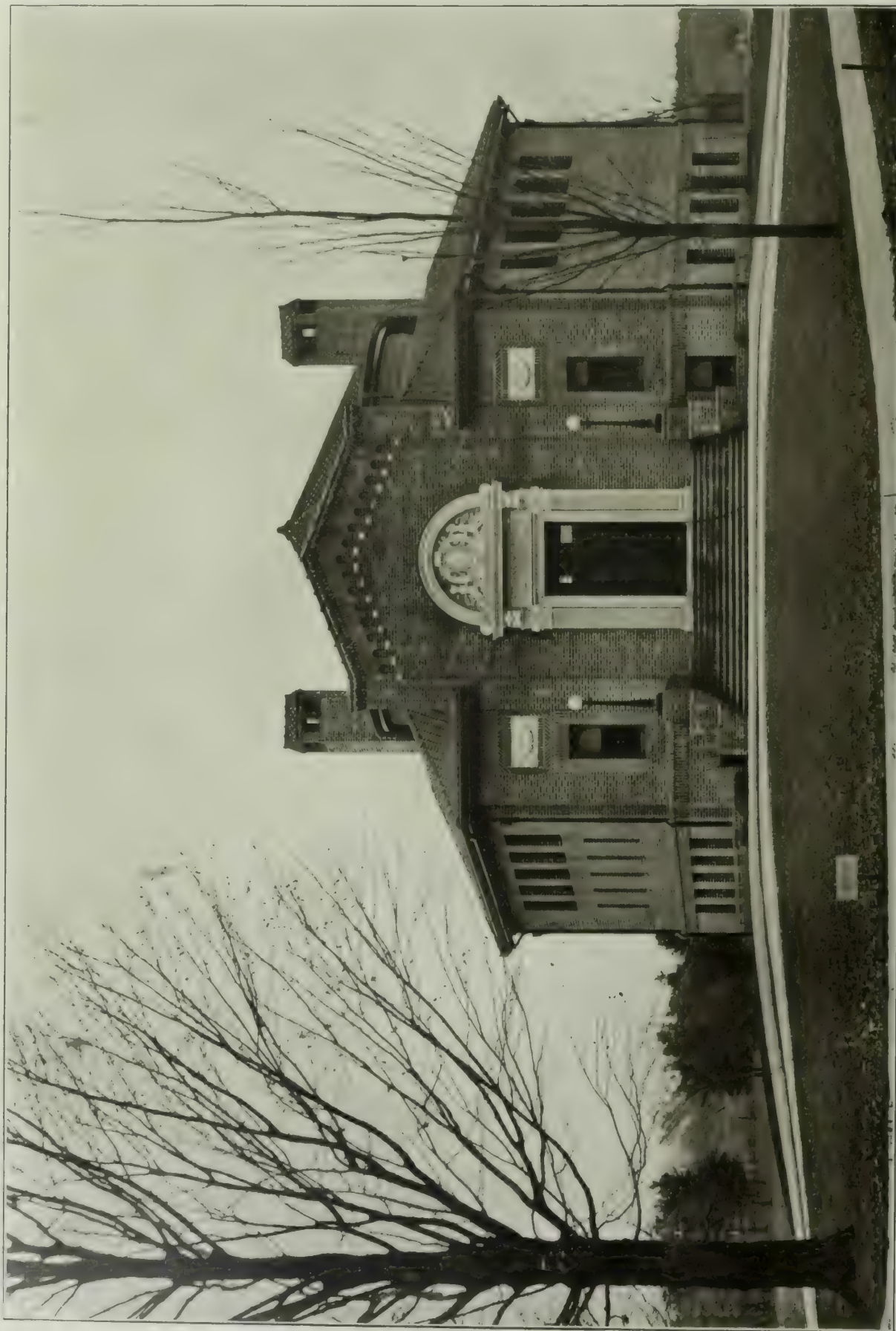


BASEMENT PLAN.

PLANS, CLUB HOUSE,
ANDOVER, MASS.



DETAIL OF FRONT ELEVATION, STEVENS MEMORIAL LIBRARY, NORTH ANDOVER MASS
GUY LOWELL, ARCHITECT.



STEVENS MEMORIAL LIBRARY, NORTH ANDOVER, MASS.
GUY LOWELL, ARCHITECT.



DETAIL OF MAIN FACADE

STEVENS MEMORIAL LIBRARY, NORTH ANDOVER, MASS.

GUY LOWELL, ARCHITECT.

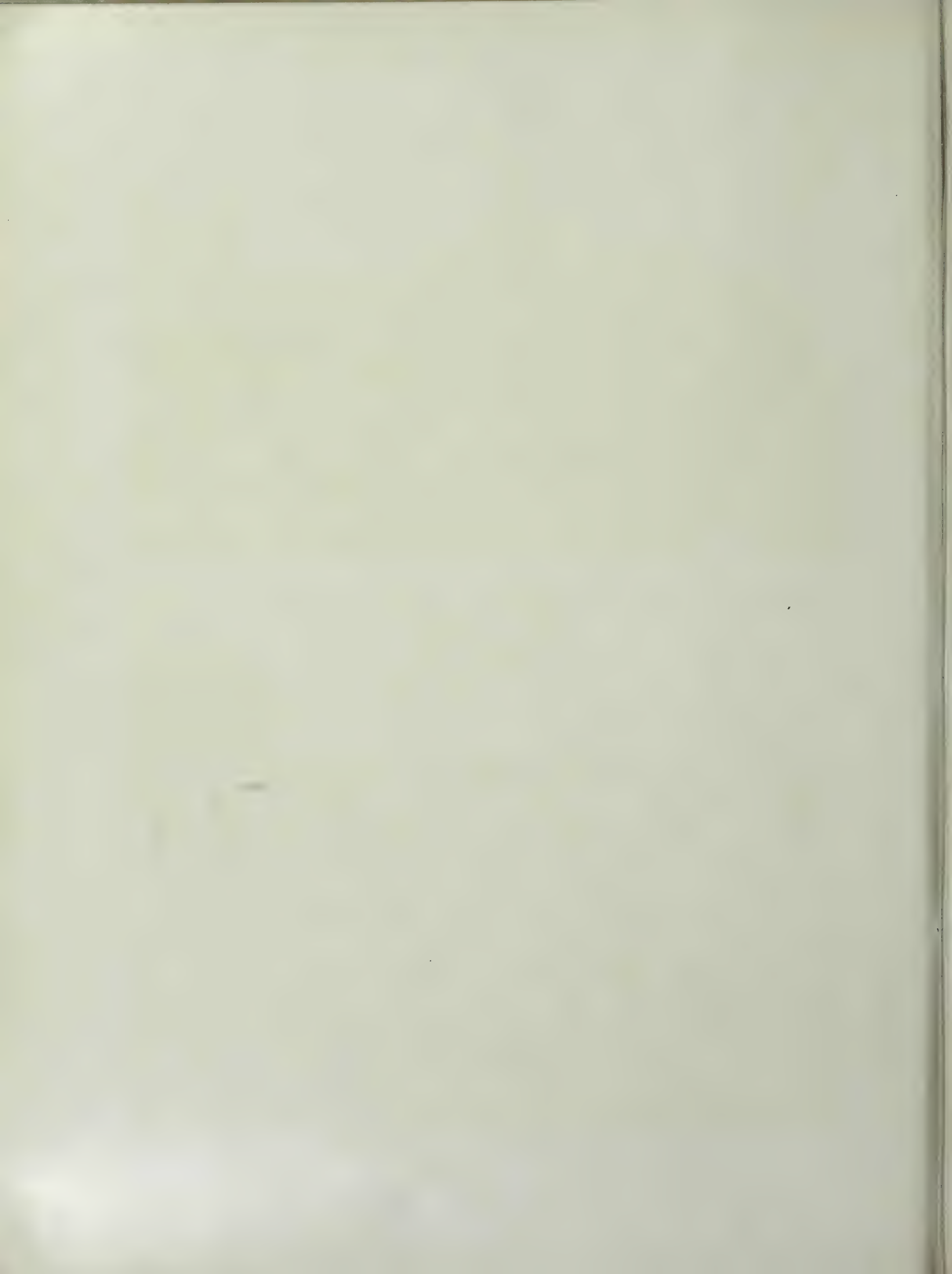


DETAIL OF LIVING-ROOM GABLE FROM GARDEN.



DETAIL OF COURT BALCONY FROM GARDEN.

HOUSE AT LOCUST VALLEY, LONG ISLAND, N. Y.
GROSVENOR ATTERBURY, ARCHITECT.





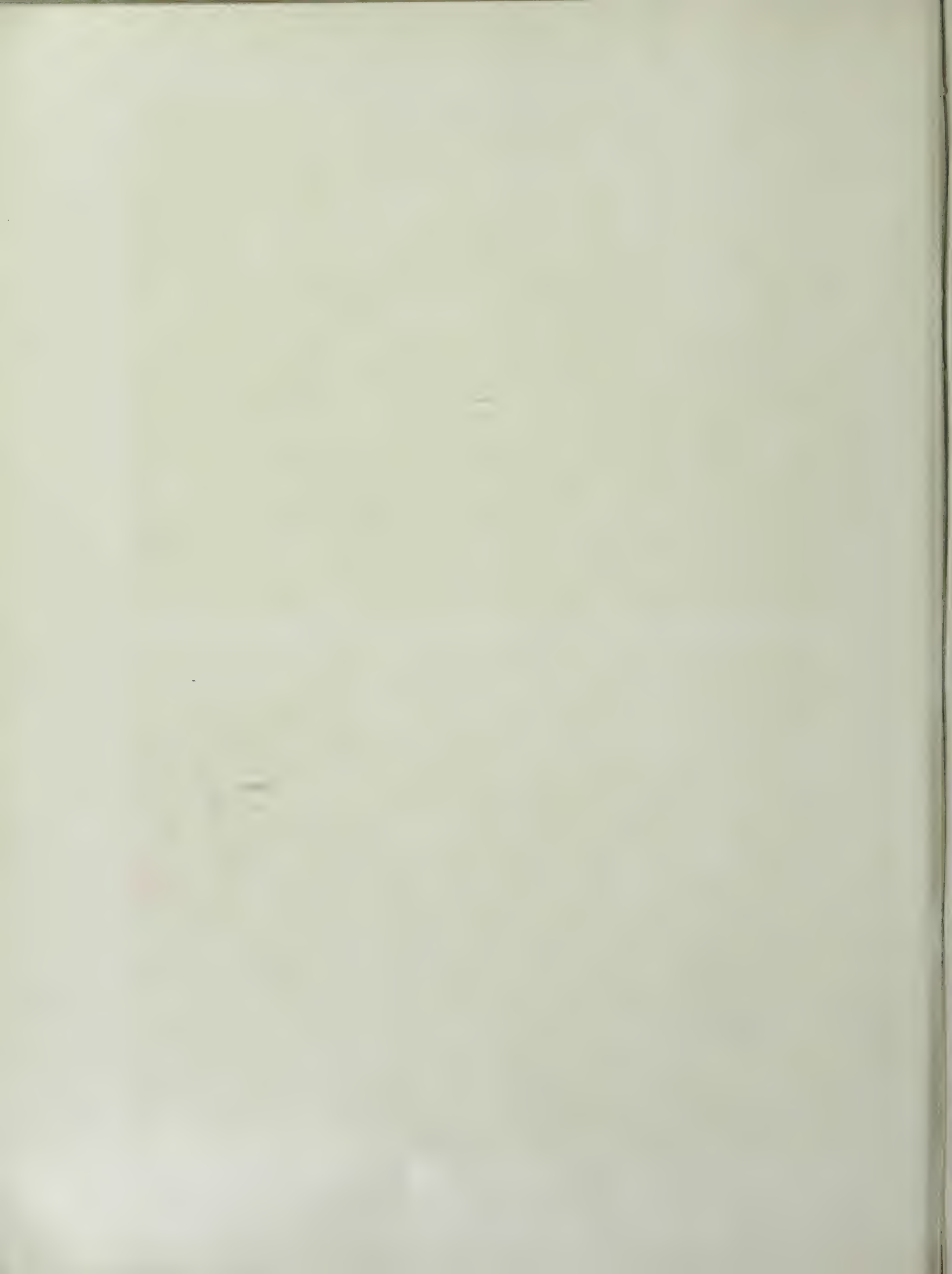
GENERAL VIEW OF HOUSE FROM SOUTHWEST.



GENERAL VIEW OF COURT AND GARDEN FROM SOUTH END OF GARDEN.

HOUSE AT LOCUST VALLEY, LONG ISLAND, N. Y.

GROSVENOR ATTERBURY, ARCHITECT.





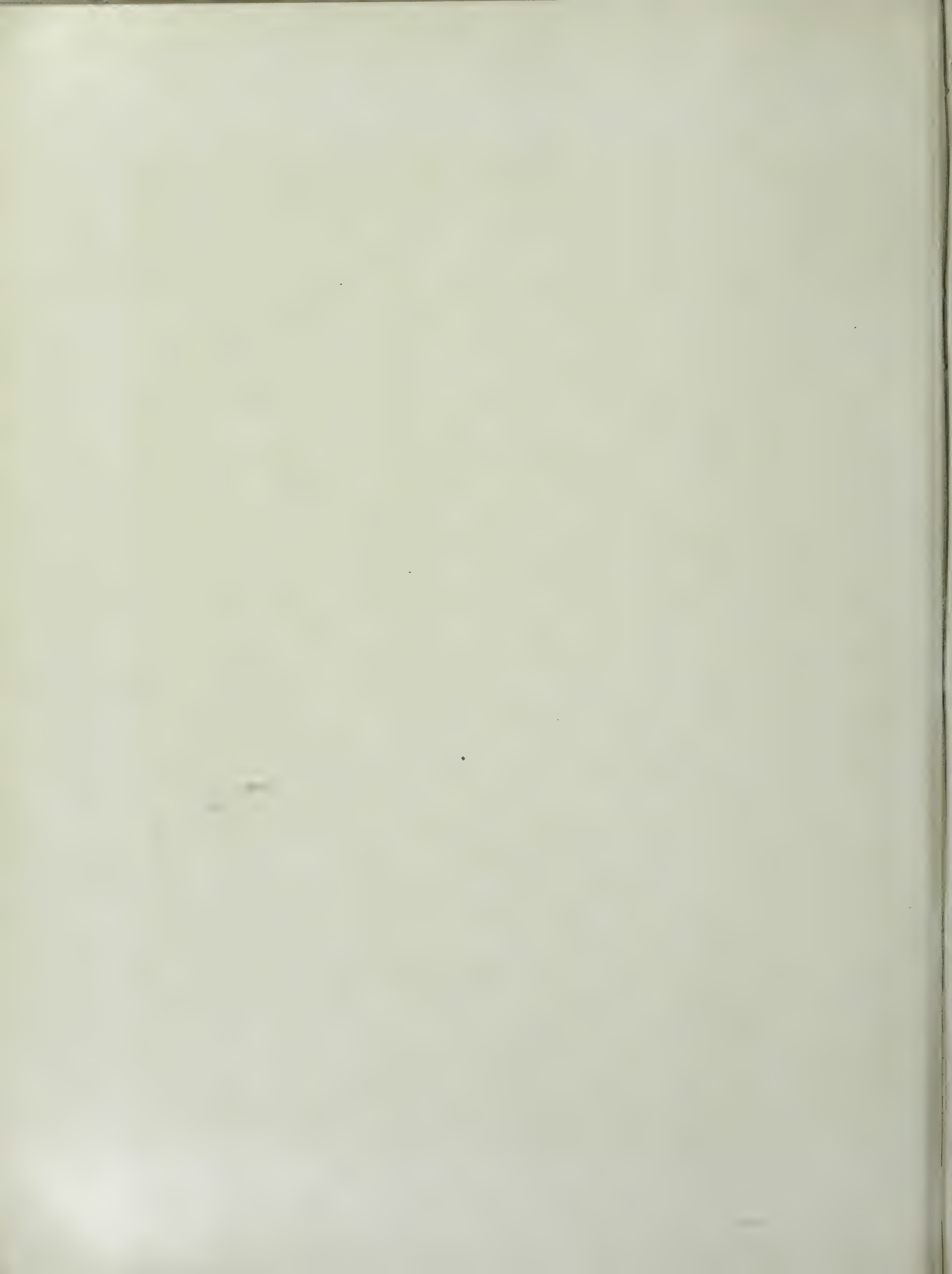
DETAIL OF LIVING-ROOM GABLE AND PORCH FROM SOUTHWEST.



DETAIL OF NORTHEAST WING SHOWING MAIN ROAD.

HOUSE AT LOCUST VALLEY, LONG ISLAND, N. Y.

GROSVENOR ATTERBURY, ARCHITECT.



SCALE: $\frac{1}{4}$ INCH = 1 FOOT DETAILS SCALE: $\frac{1}{2}$ INCH = 1 FOOT

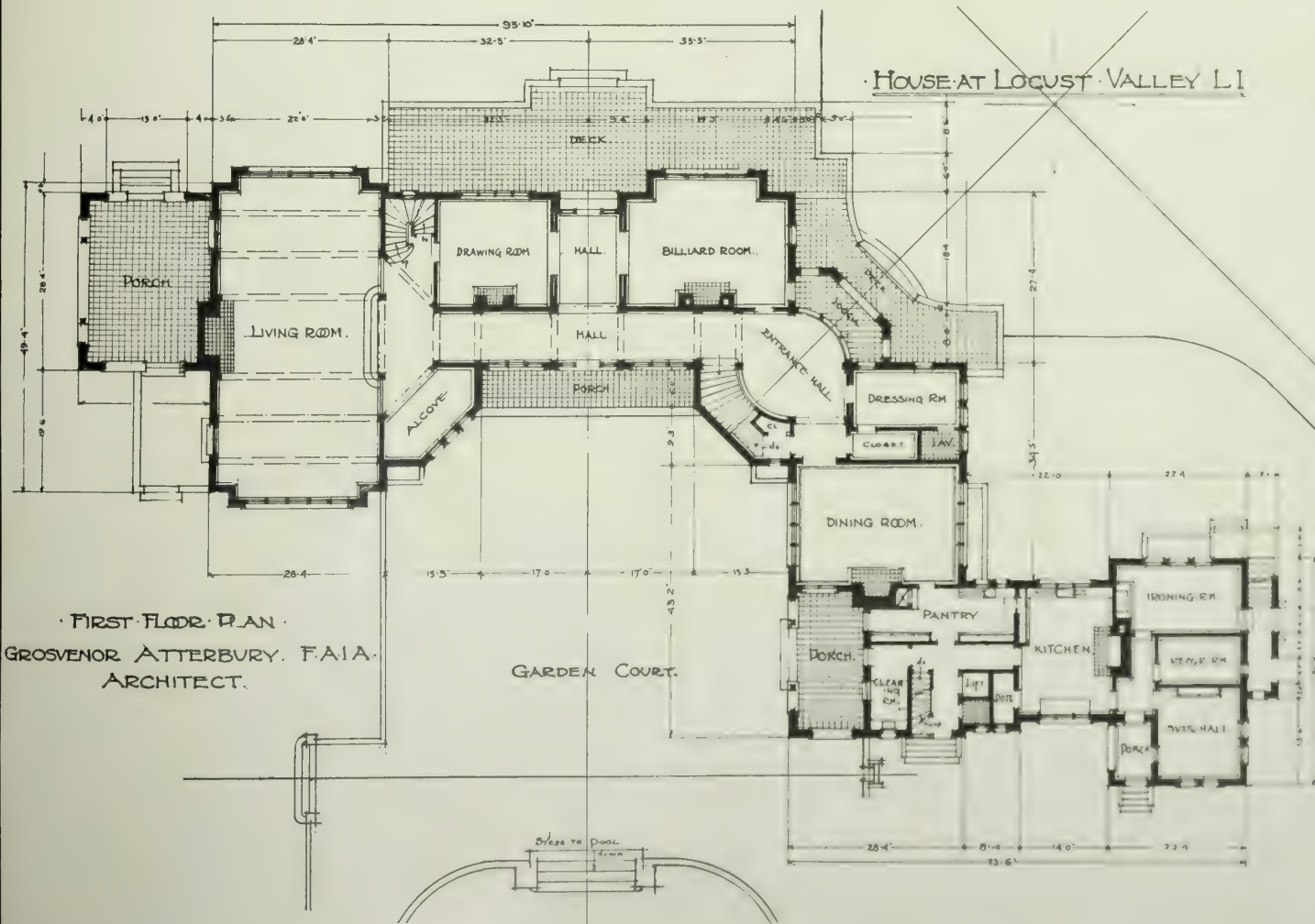
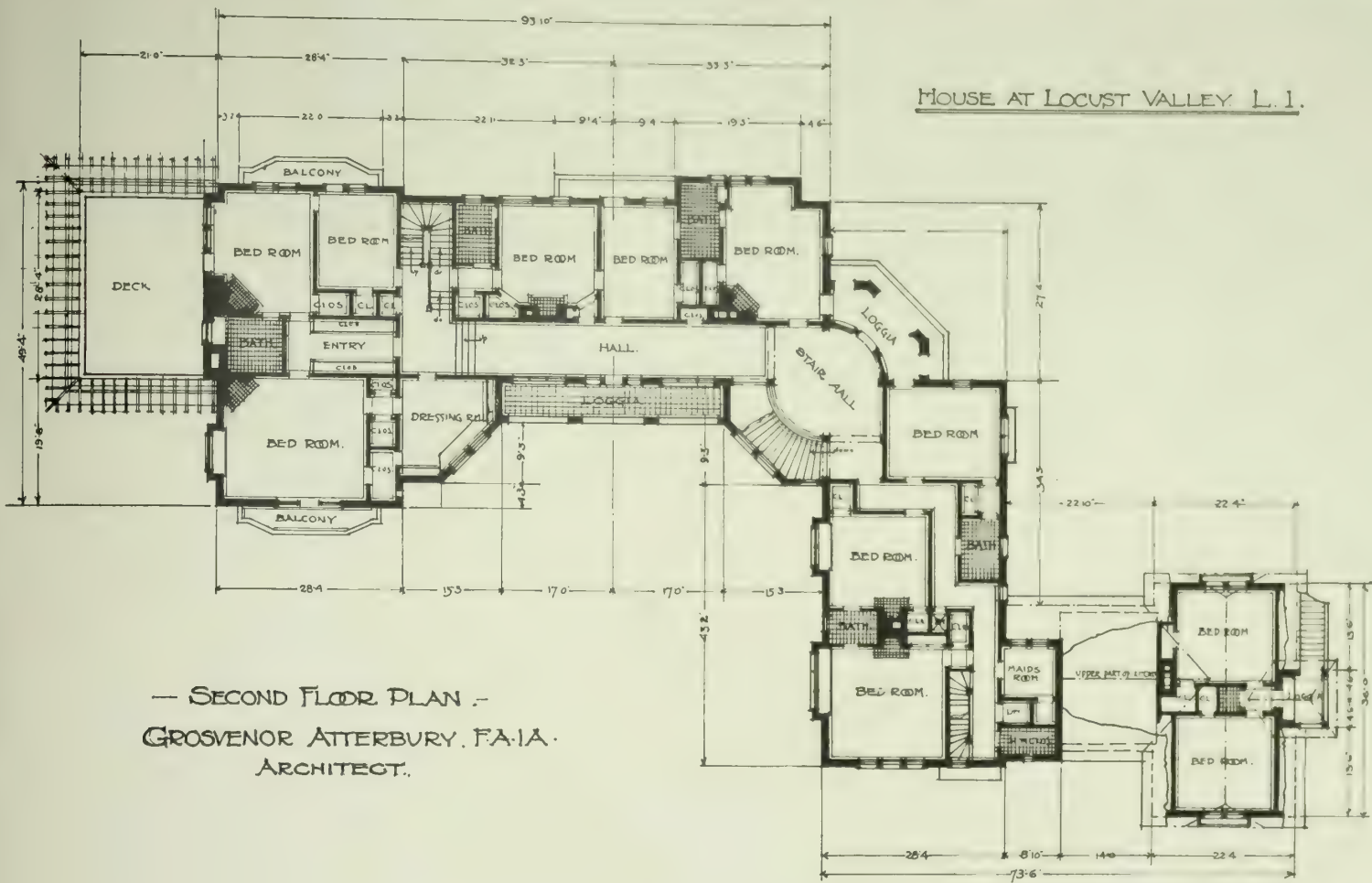
HOUSE AT LOCUST VALLEY, L. I.

GROSVENOR ATTENBURY, ARCHITECT.
20 WEST-43RD STREET, NEW YORK.

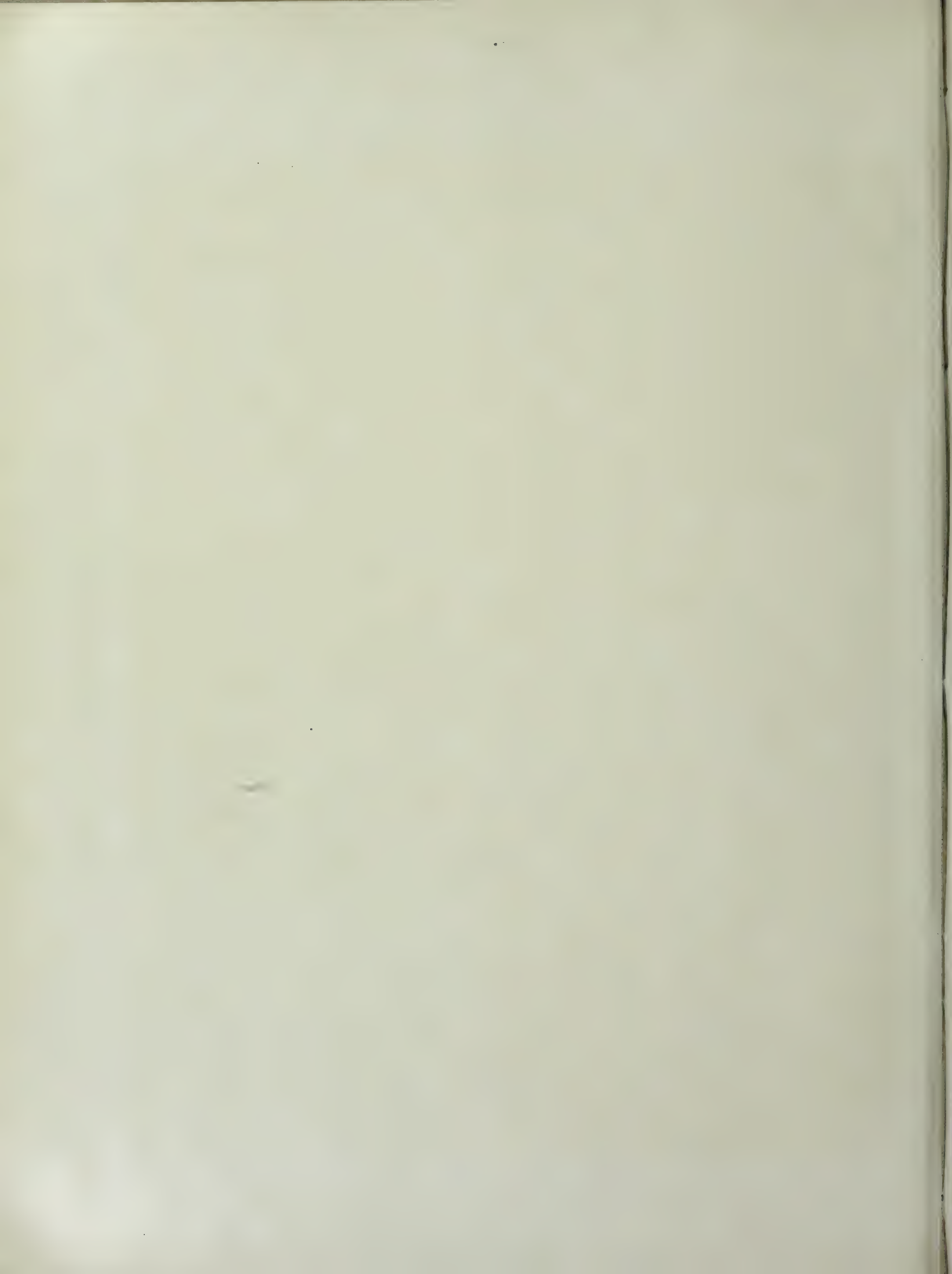


DETAILS. HOUSE AT LOCUST VALLEY, LONG ISLAND, N. Y.

GROSVENOR ATTENBURY, ARCHT.



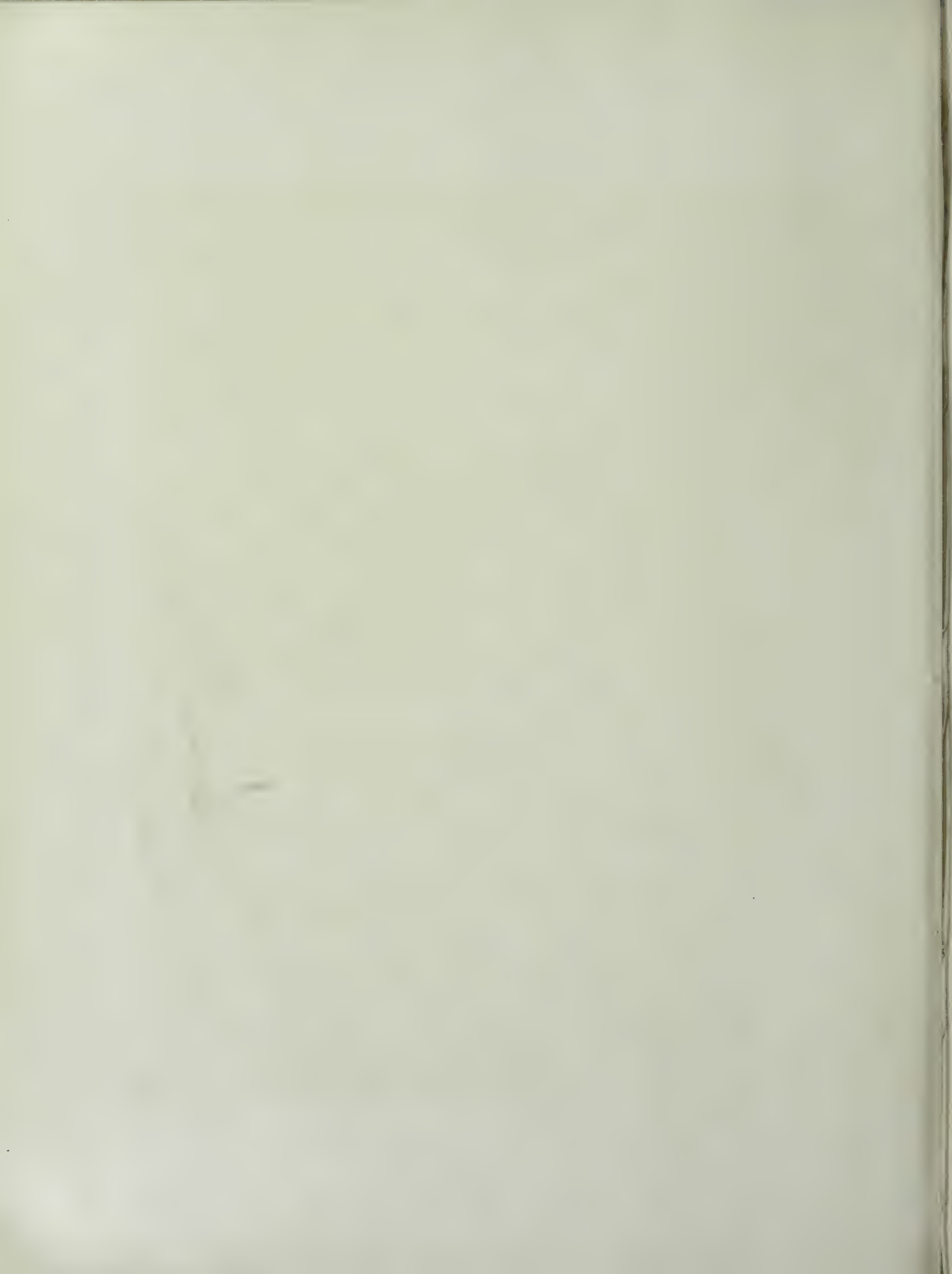
PLANS, HOUSE AT LOCUST VALLEY LONG ISLAND, N. Y.
GROSVENOR ATTERBURY, ARCHITECT.

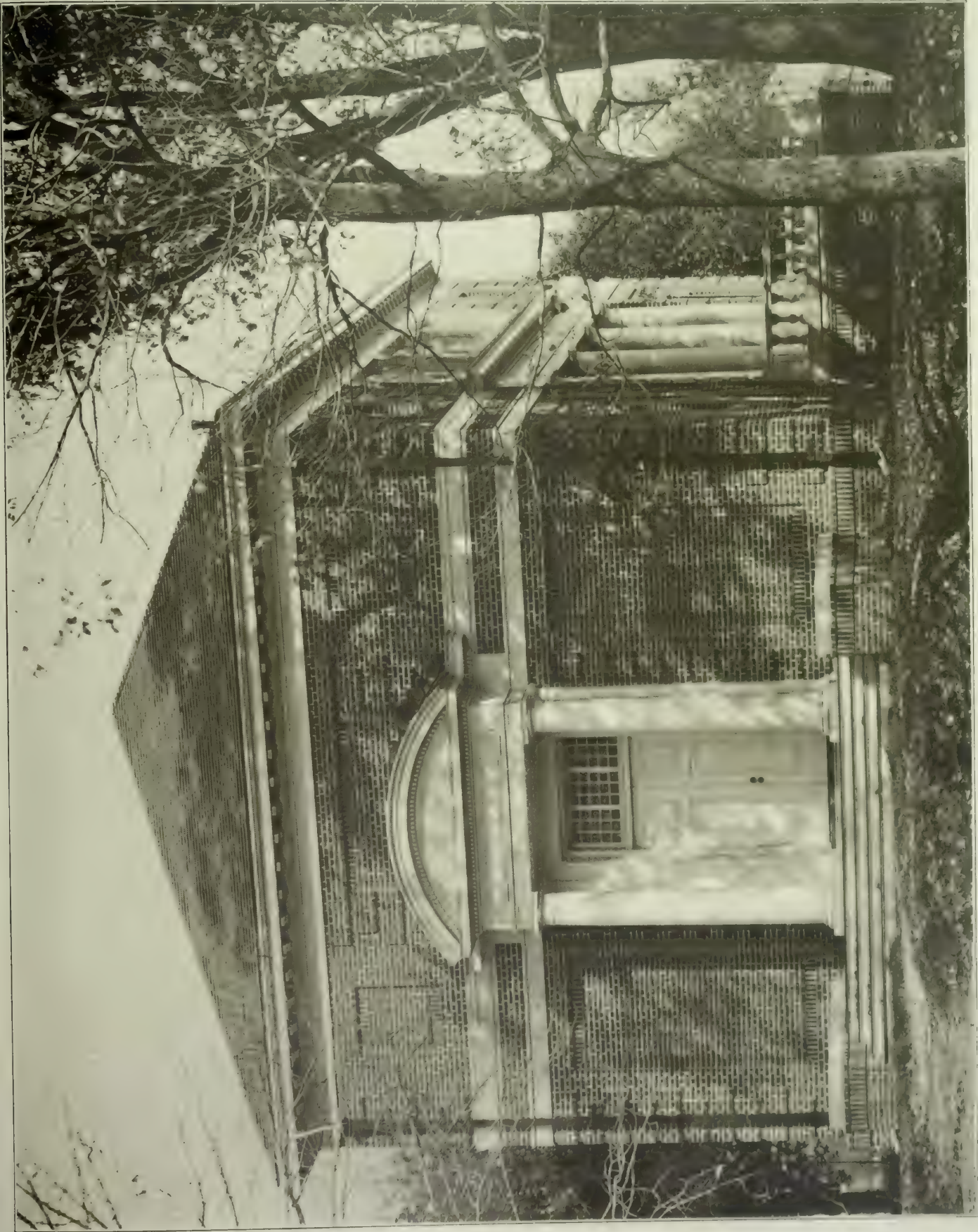




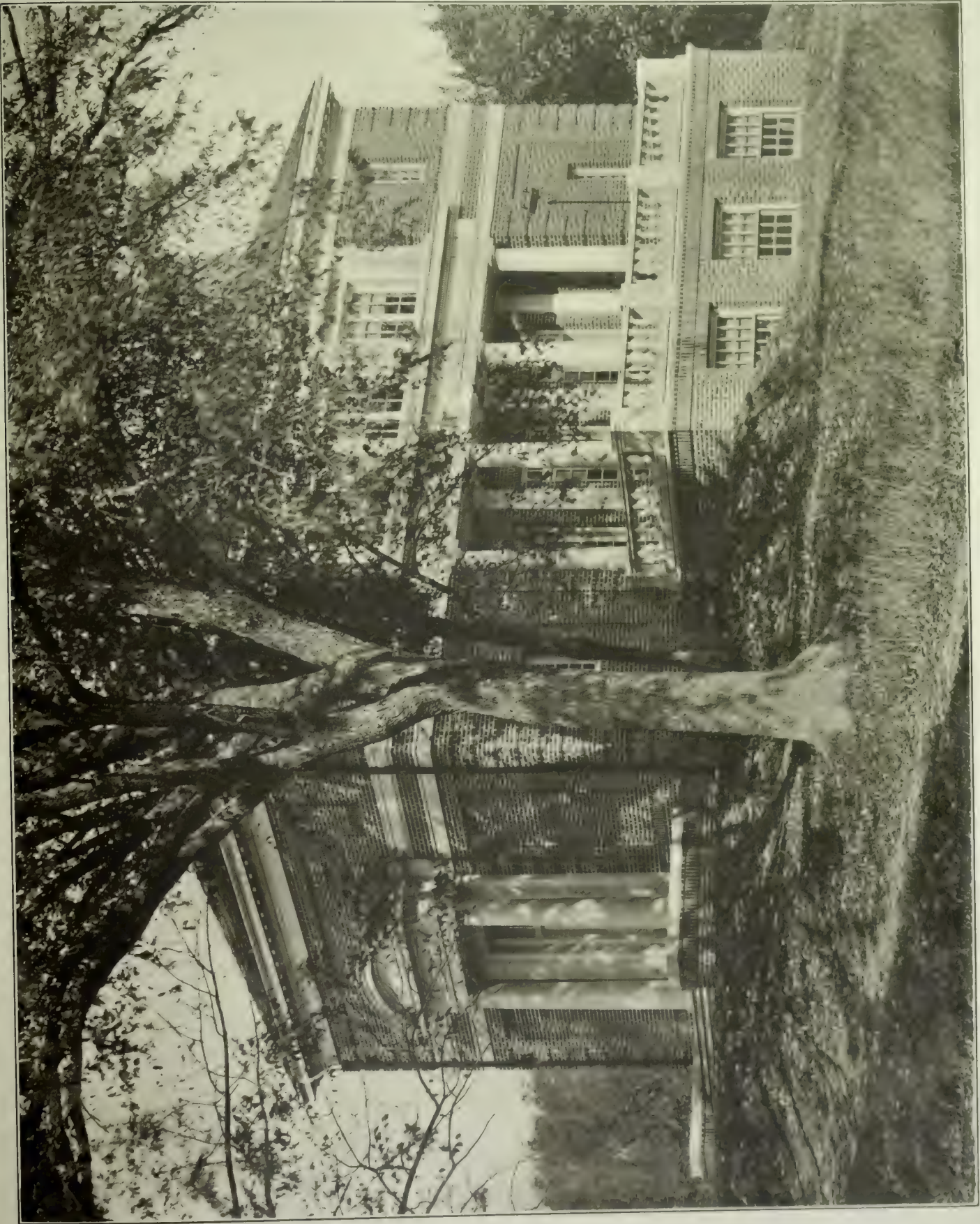
GENERAL PLAN OF HOUSE AT LOCUST VALLEY · L. I.
SCALE · ONE INCH · EQUALS · 16 FEET ·

GENERAL PLAN OF HOUSE AT LOCUST VALLEY, LONG ISLAND, N. Y.
GROSVENOR ATTERBURY, ARCHITECT. JAMES L. GREENLEAF, LANDSCAPE ARCHITECT

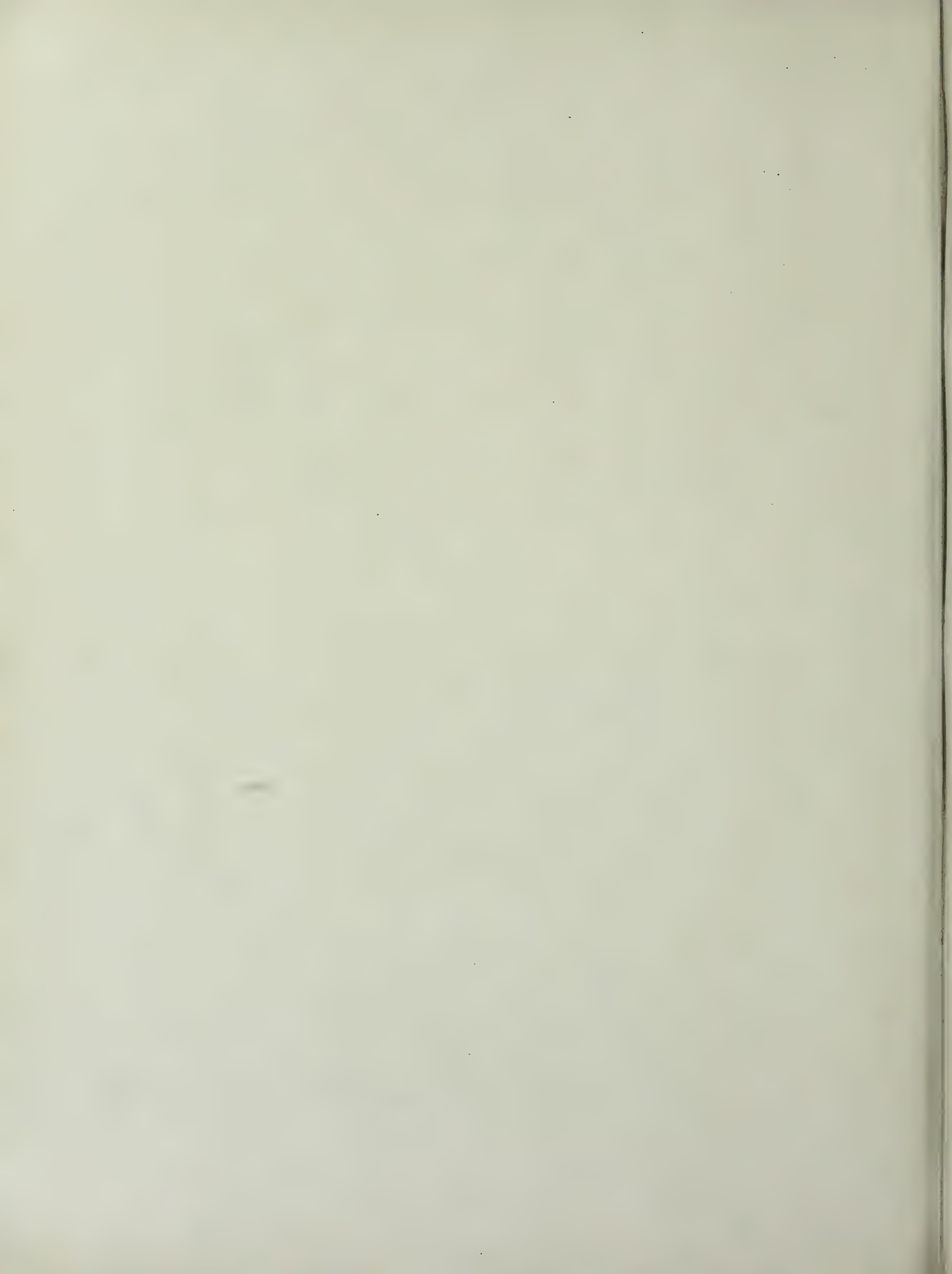




CLUB HOUSE, ANDOVER, MASS.
GUY LOWELL ARCHTCT.



CLUB HOUSE, ANDOVER, MASS.
GUY LOWELL, ARCHITECT



THE BRICKBUILDER

VOLUME XVII

FEBRUARY 1908

NUMBER 2

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Architectural Faience	II	Brick Waterproofing	IV
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TOWN HALL, LUBECK, GERMANY.

THE BRICKVILDER

VOL. 17 NO. 2 ;

DEVOTED TO THE INTERESTS OF ARCHITECTURE IN MATERIALS OF CLAY

FEBRUARY 1908

The American Theater—III.

FOYERS AND ANTEROOMS.

BY CLARENCE H. BLACKALL.

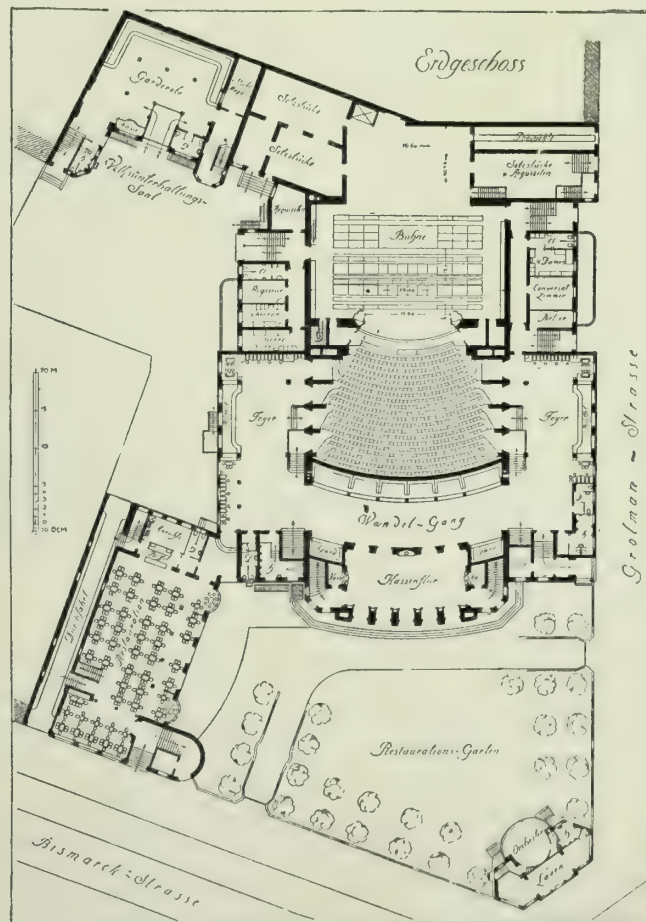
THE weak points in the American theater, the features which are generally bad in plan, illogical in arrangement and slovenly in treatment, and which are always markedly inferior to what is found in the best work abroad are the foyers and approaches. From the manager's standpoint, any floor space in the front of the house not actually earning money is a waste of good opportunity, and it is doubtful if any theater promoter would ever surrender for foyers and lobbies a single square foot more than the law's minimum demand. Consequently, the good-natured American public submits to being crowded through insufficient doorways, and down narrow stairways, so that the theater can earn more money on a lesser first cost. We simply do not know what really ample exits mean. Two typical theaters from Europe will illustrate by contrast what we have not. The Schiller Theater at Charlottenburg, Berlin, gives nearly twice as much space to foyers, approaches and stairs as is given to the entire auditorium. In the Raimund Theater, Vienna, the approaches are greater than the hall. In this country it is seldom that the approaches equal in aggregate fifty per cent of the area of the hall. But even aside from the scanty proportions of the foyers and other rooms in front of the house, only rarely do we make the best use of the spaces the laws compel the owners to allow. Commercialism again steps in and dexterity rather than skill is displayed in complying with the legal requirements. And the building laws are not at all uniform. Boston prescribes that each division of the house, that is to say, the

orchestra, balcony and gallery, shall be preceded by a lobby or foyer of sufficient size to accommodate, standing, all the persons for whom seating capacity is arranged in each respective section. No other city has so exacting a requirement as this in regard to lobbies,

and it has made theater building in Boston unnecessarily expensive and wasteful of space, without a real gain in either safety or accommodation. New York requires no lobby at all. In a number of the most recent theaters built in that city, the only lobby space is that in front of the ticket office and the standing-up space behind the orchestra seats. In the New Amsterdam Theater this space is separated from the house only by a species of glazed partition, with movable sash. In the Stuyvesant and the Majestic theaters, the separation is by a glazed screen stopping several feet short of the ceiling. If we are to assume there is no real need for a lobby in the European sense, then it becomes simply a question of safety in case of panic or fire; and when the standing-room opens directly on the street, as in the Stuyvesant, the New York plan is really safer than the Boston plan, as shown by the Colonial. On the other hand, the New

York theaters are rarely provided with any foyer for balcony or gallery, and the stairs are carried up in open corners in such manner that no real separation is possible between the different levels.

The Brooklyn Academy of Music is a remarkable exception, in that the plan shows a monumental treatment of the approaches. The building includes a large concert hall as well as a theater, and the large foyer on



SCHILLER THEATER, CHARLOTTENBURG.

THE BRICKBUILDER.

the ground floor serves for both halls, while the ball room, on level of first balcony, can also be used as a foyer. In this building a bank of elevators is an important feature, and the stairs and exits have been worked out by the architects in a most able manner. This theater was not built by any theatrical syndicate nor as a mere investment, and its approaches could therefore be planned in a more generous manner and with more thought for the public than is usually considered practicable.

A foyer on the ground floor is in a sense a spectacular necessity. The average American audience does not go out, to any extent, between the acts, but it has come to be considered the proper scheme to elaborate the decoration and the arrangement of the main foyer, and to give it a festive character, quite aside from that demanded by practical requirements. There is not the same necessity for space and display in connection with the foyers for balcony and gallery, and they could with perfect safety be dispensed with, provided the exits and entrances are properly arranged. The foyer, then, from an architectural standpoint, becomes purely a matter of design. A width of eighteen feet, carried across the entire frontage of the auditorium is a minimum for a first-class theater. It is usually customary to so arrange the stairs and the approaches that all portions of the house, including the gallery, can be reached through the main foyer, so that on special occasions, when high prices are charged for gallery seats, the entire audience can come

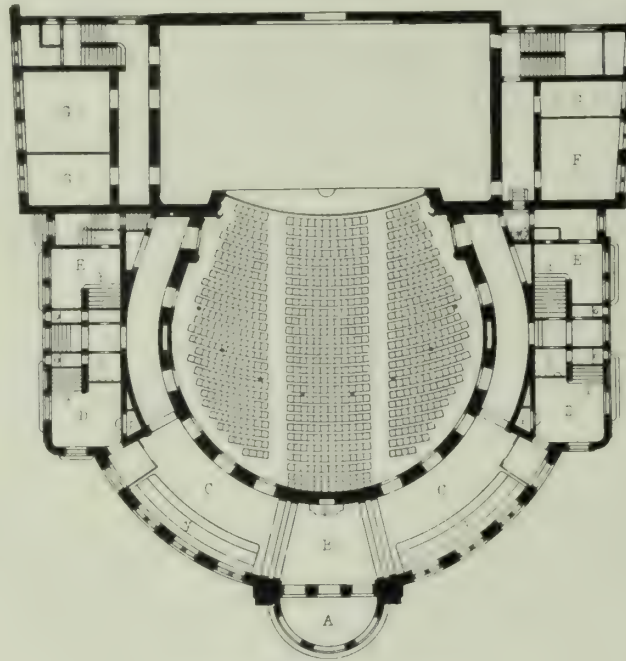
in through the main entrance, instead of the gallery ticket-holders being obliged to come in through the less prominent gallery entrance. This is accomplished usually

by the connection between the main foyer and the gallery entrance itself, and is also accomplished by extending the stairs of balcony up to the gallery, with either barriers or doors so that under ordinary circumstances no one can pass from the gallery to the balcony.

The matter of stairs is a very vital one to any theater. They should never be less than five feet in width, and when more than six feet in width, should have a fixed rail down through the center of each run. The stairs should be in runs of not more than twelve steps and the platforms should all be built with rounded corners, so that in case of panic, no one can be squeezed up into an angle. Requirements as to stair capacity vary greatly. Boston's new law passed last year calls for an aggregate width, for inside stairway,

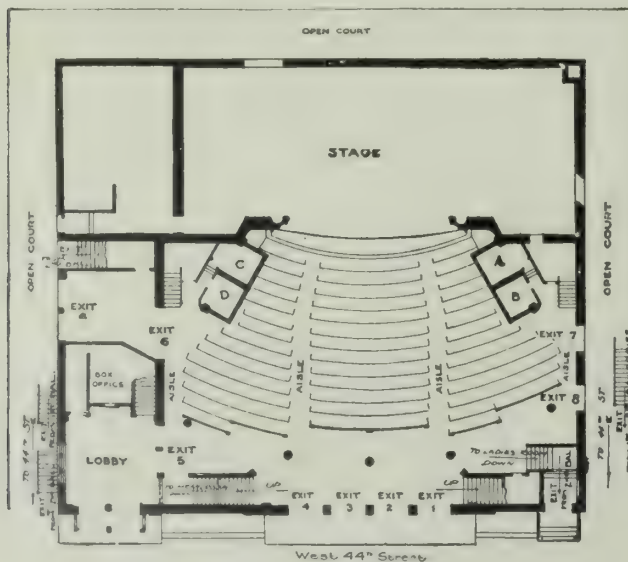
of twenty inches for each one hundred people the theater can seat, besides a minimum of ten inches per one hundred people for the width of outside stairways or fire escapes, and this represents a fair average of what is believed to be good practice. But all stairs should be so arranged that in an emergency, each division of the house can be emptied independently, as far as the street, without interfering with or crossing any exit from another division.

Stairs at the best, however, are objectionable. Some theaters have been planned in which the level of the

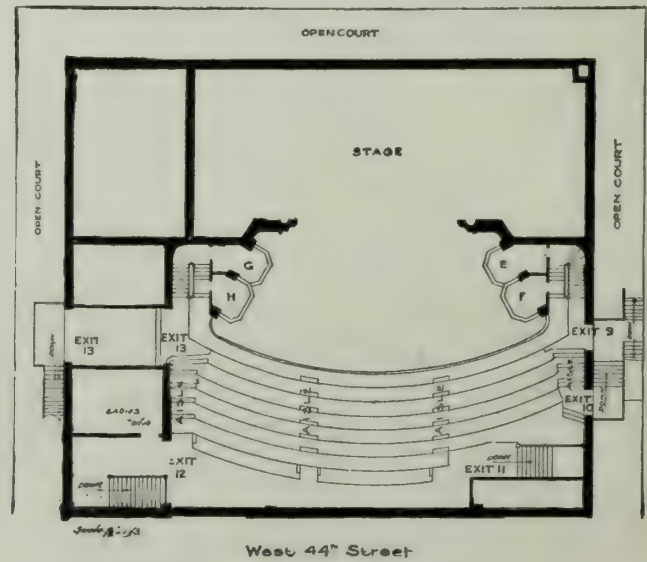


RAIMUND THEATER, VIENNA.

- | | |
|---------------------|---------------------|
| A. Main Entrance. | a. 1st Tier Stairs. |
| B. Main Vestibule. | b. 2d Tier Stairs. |
| C. Hall. | c. Service Stairs. |
| D. Lobby, 1st Tier. | p. Box Office. |
| E. Lobby, 2d Tier. | w. Bar. |
| F. Green Room. | y. Cloak Room. |
| G. Stores. | z. Lavatory. |



GROUND FLOOR PLAN.



FIRST BALCONY PLAN.

STUYVESANT THEATER, NEW YORK.

main entrance from the street was midway between the level of the balcony and the level of the orchestra, so that the ascent to the balcony required only a slight rise. This has not usually found favor, as the holders of orchestra seats, which are highest in price, object to going down. Several very clever attempts have been made to do away with stairs entirely, substituting therefor inclined ways. In the Los Angeles Opera House the main floor is dropped slightly below the street, but not sufficient to seem like a descent. A broad and easy

ramp, of grade nowhere more than one in twelve, leads directly from the main foyer to the balcony. The theater is built on the side of a hill and, consequently, from the upper level there is an opportunity to gain direct access to the upper row of the gallery, from the rear. So that as a matter of fact, no one need walk up any steps to reach any portion of the house. The same problem was worked out in a more architectural manner and by the same architect, in the Nixon Theater in Pittsburg. In this arrangement, a wide ramp leads up



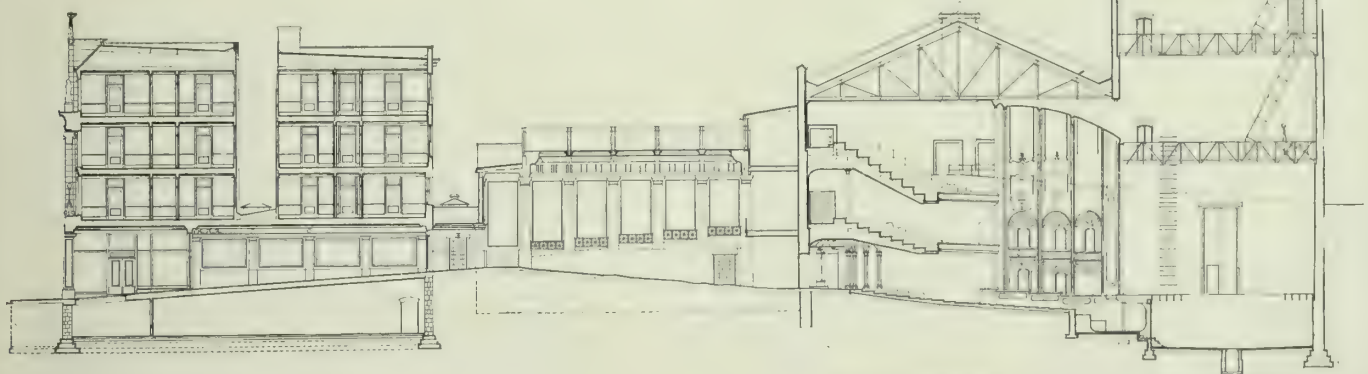
STUYVESANT THEATER, NEW YORK.
George Keister, Architect.

from just inside the ticket door to a point on a level with the central tier of the gallery. A broad cross aisle connects the two entrances, and steps lead up and down the sides of the balcony, to reach the upper and lower levels. The grade of the incline is about one in twelve, and in practice it has been found to work very satisfactorily. In this theater stairs are also provided, but the audience uses the ramp quite as much as the stairs.

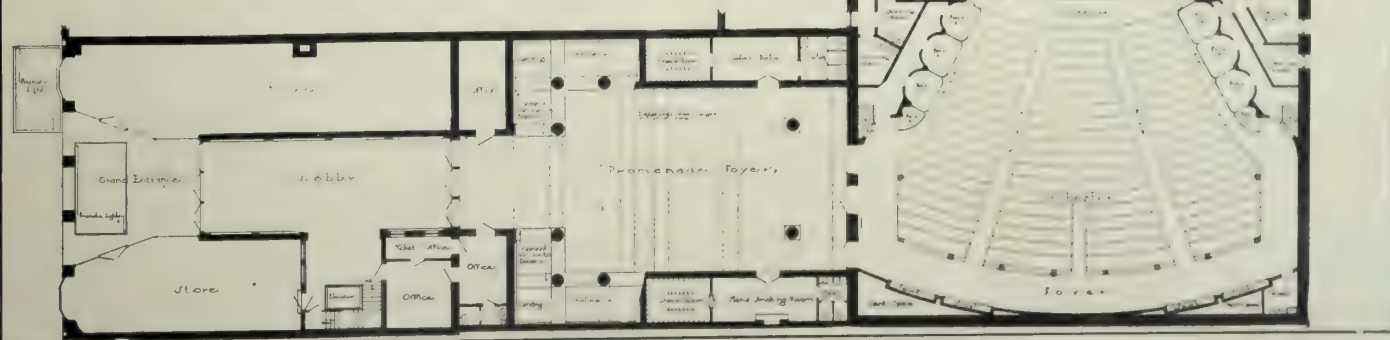
The other requirements in plan for the front of the house include a ladies' room, which is usually made a

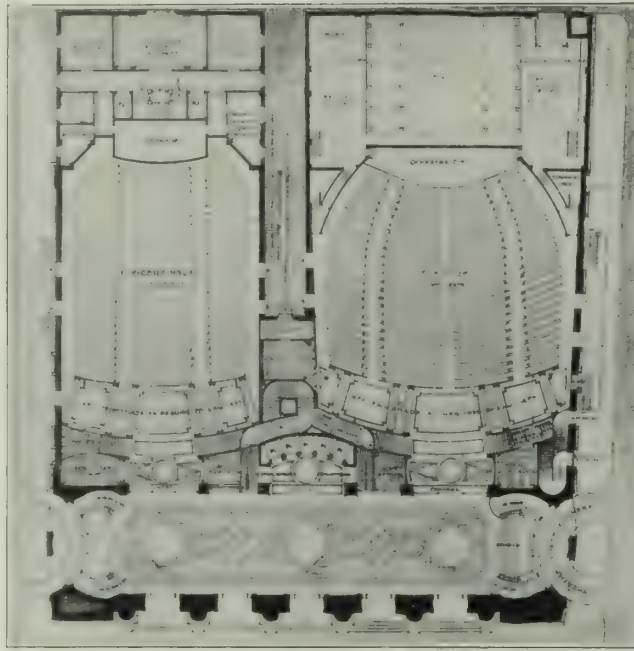
very ornamental feature of the theater, and elaborately decorated as an advertisement. In close proximity to this there should be an ample coat room not less than ten by fifteen feet, for a first-class theater, and also a ladies' lavatory. Occasionally this ladies' room and lavatory can be put into the basement or on the balcony level, but where space permits it is invariably in close proximity to the main foyer.

The entrance vestibule for

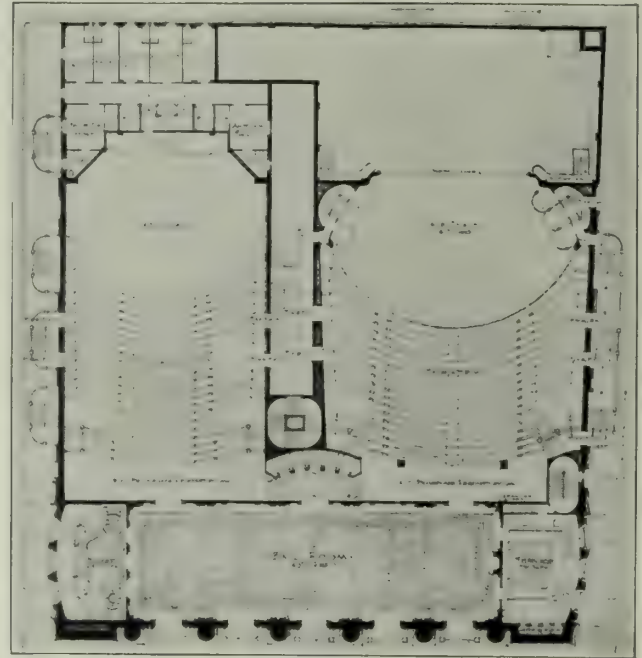


LONGITUDINAL SECTION
AND
FIRST FLOOR PLAN,
MASON OPERA HOUSE, LOS ANGELES, CAL.
B. W. Marshall, Architect.





FIRST FLOOR PLAN (TAKEN BELOW STAGE LEVEL).

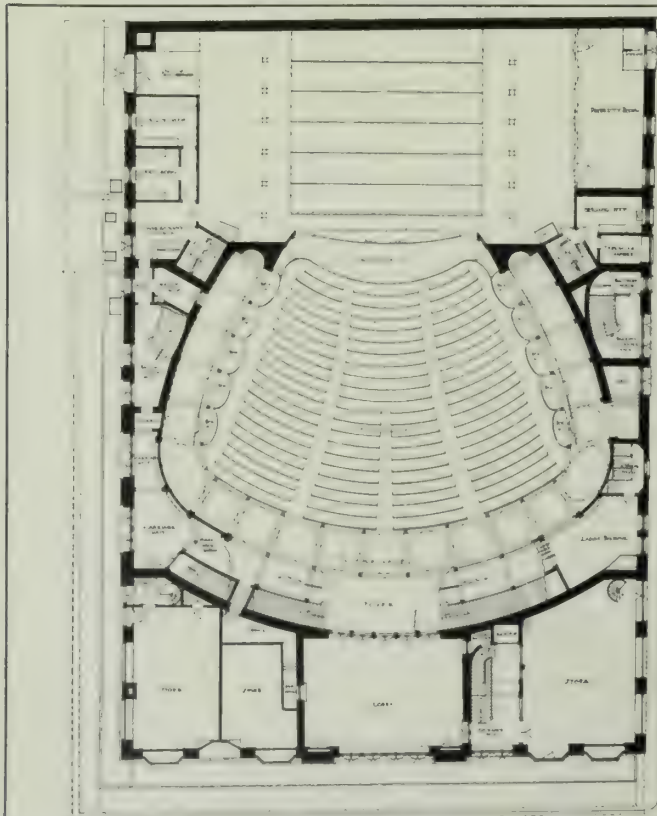


FIRST BALCONY PLAN.

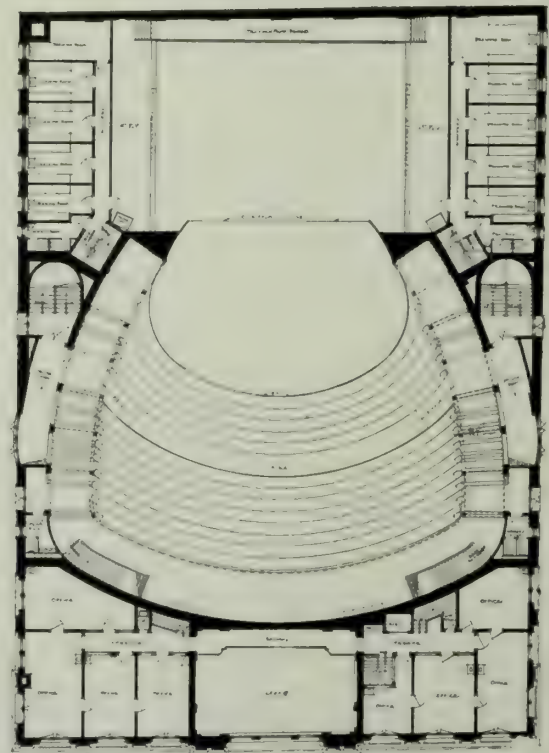
ACADEMY OF MUSIC, BROOKLYN.
Herts & Tallant, Architects.

ordinary theaters should be not less than fifteen feet wide, with ticket office about midway of the length, so as to allow of the formation of a line of ticket purchasers without interfering with entrance and exit. The ticket office is better not too large. Seven feet in width by

twelve in length allows of two selling-windows and plenty of space for ticket racks. The usual custom is to arrange the tickets for the day's performance on a swinging-board in which are slots corresponding to the seats of each division of the house, each ticket occupying a slot



NIXON THEATER



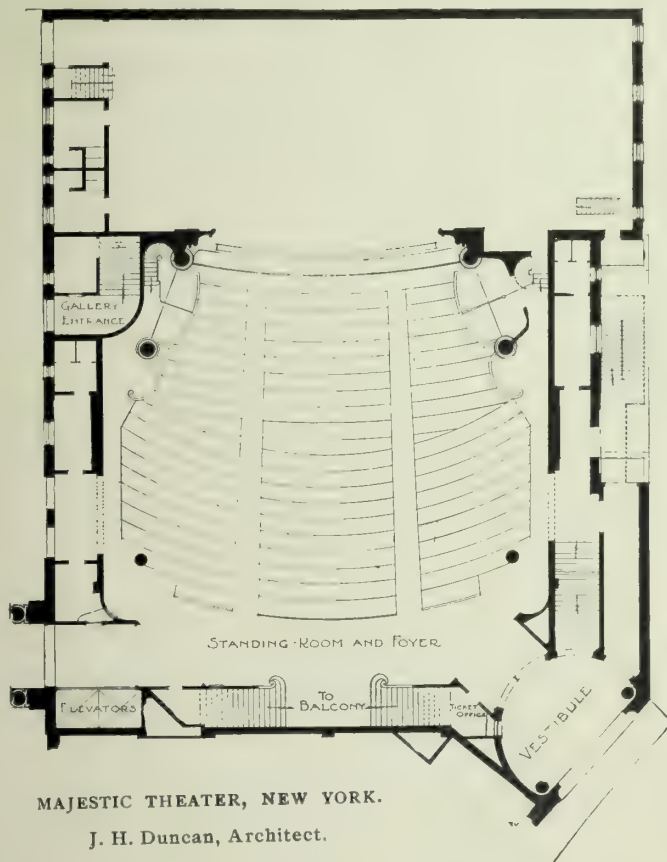
NIXON THEATER

NIXON THEATER, PITTSBURG.
B. W. Marshall, Architect.

by itself so that the ticket seller can tell at a glance what seats are available. Advance sales for future performances are made from racks in which all the tickets of a given row are in a separate compartment by themselves. It is usual to arrange a ticket office so that seats can be sold two weeks in advance, at any time.

There should also be an office for the manager which can be reached from the main vestibule and also from the main foyer. Adjoining this there should be a small counting room in which the tickets can be counted up each night and the records kept of the performance.

The smoking room and lavatory for men are usually placed in the basement. Rarely is there sufficient space on the ground floor to accommodate these. In the base-



ment is also placed a room for the ushers, and there should be a room for the door-keeper, and a closet containing a large sink fed with hot, cold and ice water, for the use of the water boys.

In arranging the approaches to the theater it is well to provide at least three sets of doors between the outside air and the auditorium. There should be two between the sidewalk and the vestibule. There should be a door between the vestibule and the foyer, at which point the tickets are collected, and there should be doors between the foyer and the orchestra. All these doors should be double swing, except the two outer sets, both of which should open out only, and all the doors should be fitted with checks and door bolts, to hold open.

THE art of building is the strongest, proudest, most enduring, of the arts of man; it is the art which is associated with all civic pride and sacred principle; with which men record their power, satisfy their enthusiasm, make sure their defence, define and make dear their habitation.—*Ruskin.*

The Public Bath.

BY HAROLD WERNER AND AUGUST P. WINDOLPH.

A PROPER appreciation of the fundamental principles underlying the development of the public bath cannot be arrived at without at least a review in outline of its history, and its value and service to the people throughout the ages. The following discussion will include the development of the types of public baths with the various forms of bathing, some suggestions on planning, structural peculiarities, the extent of the facilities afforded, and will indicate in a measure the value, from a sanitary standpoint, to the community.

The earliest records mention the River Baths of the Ganges and Nile as a popular form of recreation and a means for cleanliness. While public bathing was fostered and encouraged by the people of the Peloponnese, the Romans in their gigantic institutions considerably perfected them, not only from a constructive but from a mechanical point as well. A pure and ample supply of water was always available through the agency of the enormous aqueducts carrying water across the Campagna, in some instances a distance of over fifty miles to the source of supply.

In the third century, B. C., we find a complete bathing establishment near the Circus Maximus in Rome, with approved form of water supply and wastes, with hot water tanks in sets to heat the water to varying degrees of temperature, with a consequent saving of heating units, similar in general principle to those in use to-day, — also provision for ventilation with air ducts to carry off the foul air, and a universal use of marbles, mosaics and other materials to make the interior as sanitary as possible. Only in mechanical devices do we show to-day any improvement.

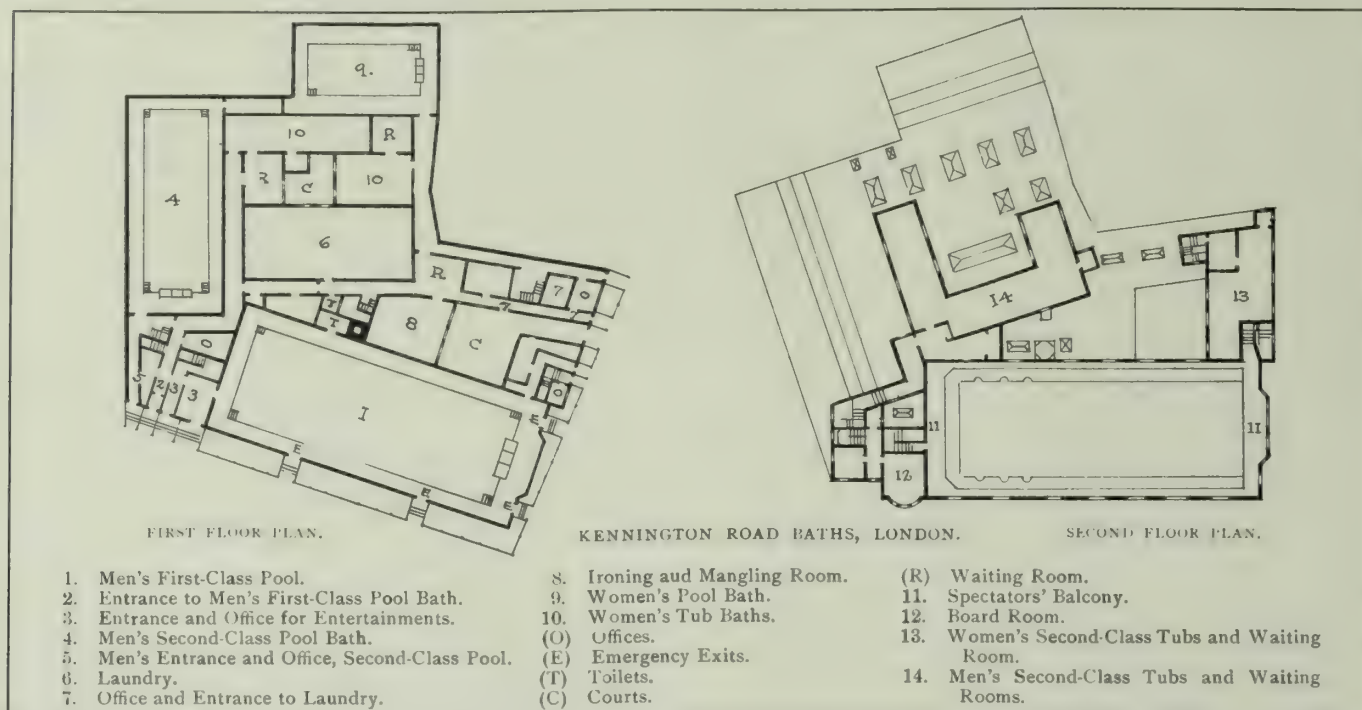
The sanitation was further improved by the liberal supply of water in the pool baths. In some cases the pools were more than two hundred feet long and contained several hundred thousand gallons of water. The largest interior pool bath (Municipal) in this country is not over one hundred and twenty-five feet in length and contains less than one hundred thousand gallons of water.

The bath was considered not only as a form of exercise but as a means of cure. In the city of Rome there were over eight hundred bathing establishments, the capacity of a single bath house frequently exceeding three thousand persons at one time. We find principles of sanitation carefully followed, medicines and drugs were discarded, and the bath served as a guarantee of the public health.

The larger establishments, constructed under the reigns of Titus, Caracalla and Diocletian, no longer served purely as a means for bathing but as a form of recreation and pleasure. The use of anointing, massage, lounging and other rooms marked the decline, and it appears that the true purpose of the public bath had been forgotten. The bath had become simply an institution to pander to the luxurious tastes of a decadent people, and for several centuries there was a period of inaction until the fifth century when the people of the peninsula, realizing that the bath in order to accomplish its purpose must serve merely as a place for bathing

developed a simpler type of building, discarding many of the unnecessary features of the Diocletian type. The buildings in operation during the Middle Ages were mostly of a private nature devoted to medicinal purposes. It was not until the latter part of the eighteenth

another development of this form of bathing and proved very popular, although later on came in for considerable criticism, owing to the room required, the great amount of water used, the difficulty of keeping the compartment and the tub clean, and the growing doubt of its efficiency



century that a revival occurred in public bath building, — the stern demands of modern civilization caused its value to be again recognized. It matters not whether this was due to altruism, or a sudden awakening to the lamentable conditions of the masses, or, owing, on the other hand, to a selfish motive, that the lack of proper bathing facilities would eventually decrease the economic value of the poor classes; suffice to know that the movement received firm support through both private and public means and apparently, at the present time, it is firmly established abroad as well as throughout this country.

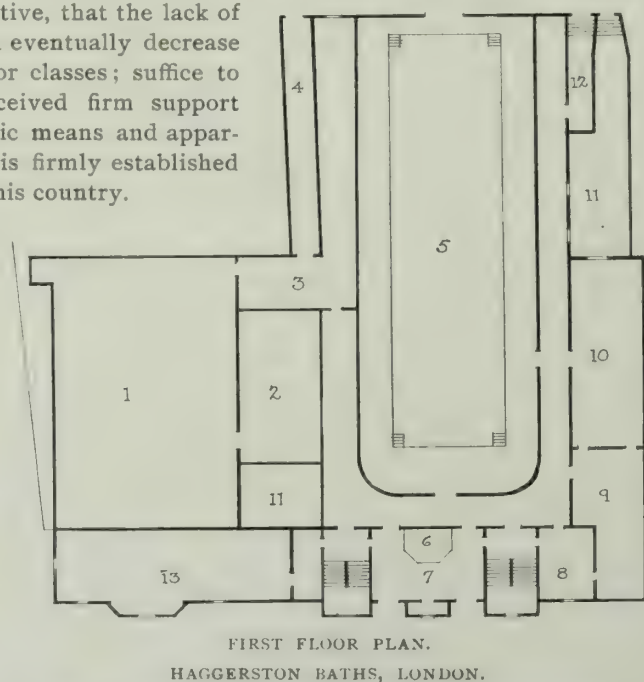
To Liverpool must be given the credit of having established the first modern public bath. The Corporation established in that city, in 1794, a public swimming pool which from the start proved successful. This modest beginning was followed by another and larger type of river bath (the St. George Bath), since re-modeled and in use to-day and now known as the Pier-head Baths. While not of a strictly modern type these baths are still proving of great benefit to the community.

The tub bath in England, known as the slipper bath, is

as a proper form of bath for an ample and complete cleansing of the body.

The shower or spray baths were the next step, modeled after a simple form of workman's bath, established some years before in Shropshire, England, which in turn were patented after the German type. These primitive shower chambers were very large, being eight feet long, four feet wide, with a circular cast-iron pan set above the floor. Over the center of the pan a rose nozzle was placed which supplied hot and cold water, with a simple chain control to regulate the supply. Occasionally the shower was placed in the same compartment with the tub bath. While this primitive form of shower and spray has been greatly improved, the shower, the most practical of all forms of bathing, has not proved very popular in England except as an auxiliary to the tub bath, or pool. English ultra conservatism rigidly adhered to the warm and cold slipper tub bath, the vapor and hot air baths.

The public wash house and laundry were incorpo-

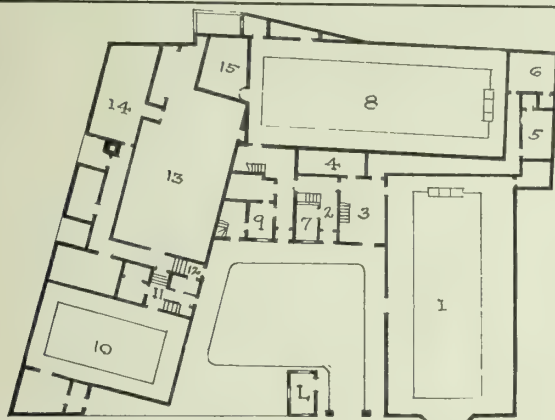


- | | |
|----------------------------------|---|
| 1. Public Laundry. | 8. Women's Waiting Room. |
| 2. Ironing Room. | 9. Women's Tub Baths. |
| 3. Waiting Room to Laundry. | 10. Club Room. |
| 4. Entrance Corridor to Laundry. | 11. Area and Courts. |
| 5. Pool. | 12. Special Exit from Pool. |
| 6. Office. | 13. Men's First Class Tub Baths and Office. |
| 7. Men's Waiting Room. | |

rated in the British bath house about 1850. Owing to the legislative enactment and consequent government support, with a revival of public interest, the building of these bathing establishments has steadily increased up to the present time. The last two decades have, however, seen the greatest activity, and the majority of the English institutions of merit date from this period.

The pool bath in its various forms has proved the most popular form of bathing in England, and while the

continent, we find, as in the transportation service, two, and occasionally three, classes of patrons. First and second pool bath, first and second shower or vapor baths, first and second and even third class tub baths had to be provided for. The question of proper entrances and exits was of considerable importance. In one case the classes were grouped with an entrance in common or all near the same point, and in another with separate entrances and offices. A modification of the latter scheme



FIRST FLOOR PLAN.



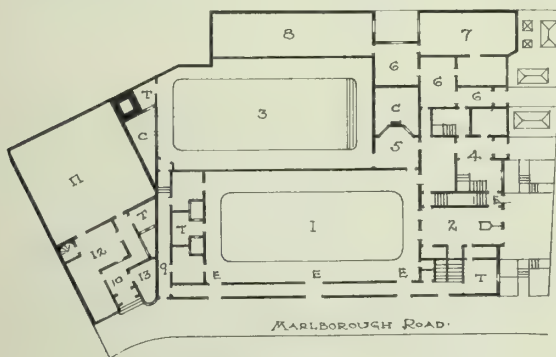
SECOND FLOOR PLAN.

TIBBERTON SQUARE BATHS, LONDON.

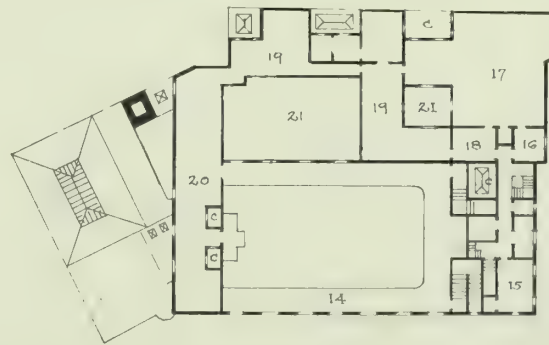
1. First-Class Pool Bath.
2. Entrance to First-Class Pool.
3. Entrance for Entertainments.
4. Coats.
5. Women's Retiring Room.
6. Men's Retiring Room.
7. Office for First-Class Pool.
8. Second-Class Pool.
9. Superintendent's Office, Second-Class Pool.

10. Women's Pool.
11. Office and Entrance, Women's Pool.
12. Entrance to Laundry.
13. Public Wash Room.
14. Ironing and Mangling Room.
15. Retiring Room.
- (L) Lodge.
16. Spectators' Balcony to Pool.
17. Women's Waiting Room.

18. Men's Waiting Room. First-Class Tub Bath.
19. Men's Waiting Room. Second-Class Tub Bath.
20. Men's First-Class Tub Room.
21. Men's Second-Class Tub Room.
22. Women's First-Class Tub Room.
23. Woman's Second-Class Tub Room.
24. Tub Room. Office.



FIRST FLOOR PLAN.



SECOND FLOOR PLAN.

OLD KENT ROAD BATHS, LONDON.

1. First-Class Pool.
2. Entrance to First-Class Pool.
3. Second-Class Pool.
4. Entrance to Second-Class Pool and Waiting Room.
5. Club Room.
6. Women's Entrance and Waiting Room.
7. Women's First-Class Tub Room.
8. Women's Second and Third-Class Tub Room.
9. Entrance to Second-Class Men's Pool.

10. Entrance to Public Laundry.
11. Wash House.
12. Ironing and Mangling Room.
13. Office.
- (T) Toilets.
- (C) Courts.
- (E) Exits.
14. Spectators' Balcony.

15. Board Room.
16. Waiting Rooms First-Class Tub Baths.
17. Men's First-Class Tub Baths.
18. Men's Second and Third-Class Waiting Room Tub Baths.
19. Men's Second-Class Tub Baths.
20. Men's Third-Class Tub Baths.
21. Courts.

authorities are somewhat divided as to its merits, almost every modern bath house is equipped with one or two pool baths. In order to better understand the difficulties of planning the buildings at this time, we must consider the various conditions as required by the Public Bath Act, and make due allowances for the general experimental and unsettled condition of the bath problem, particularly in regard to the proper form of bathing considered essential.

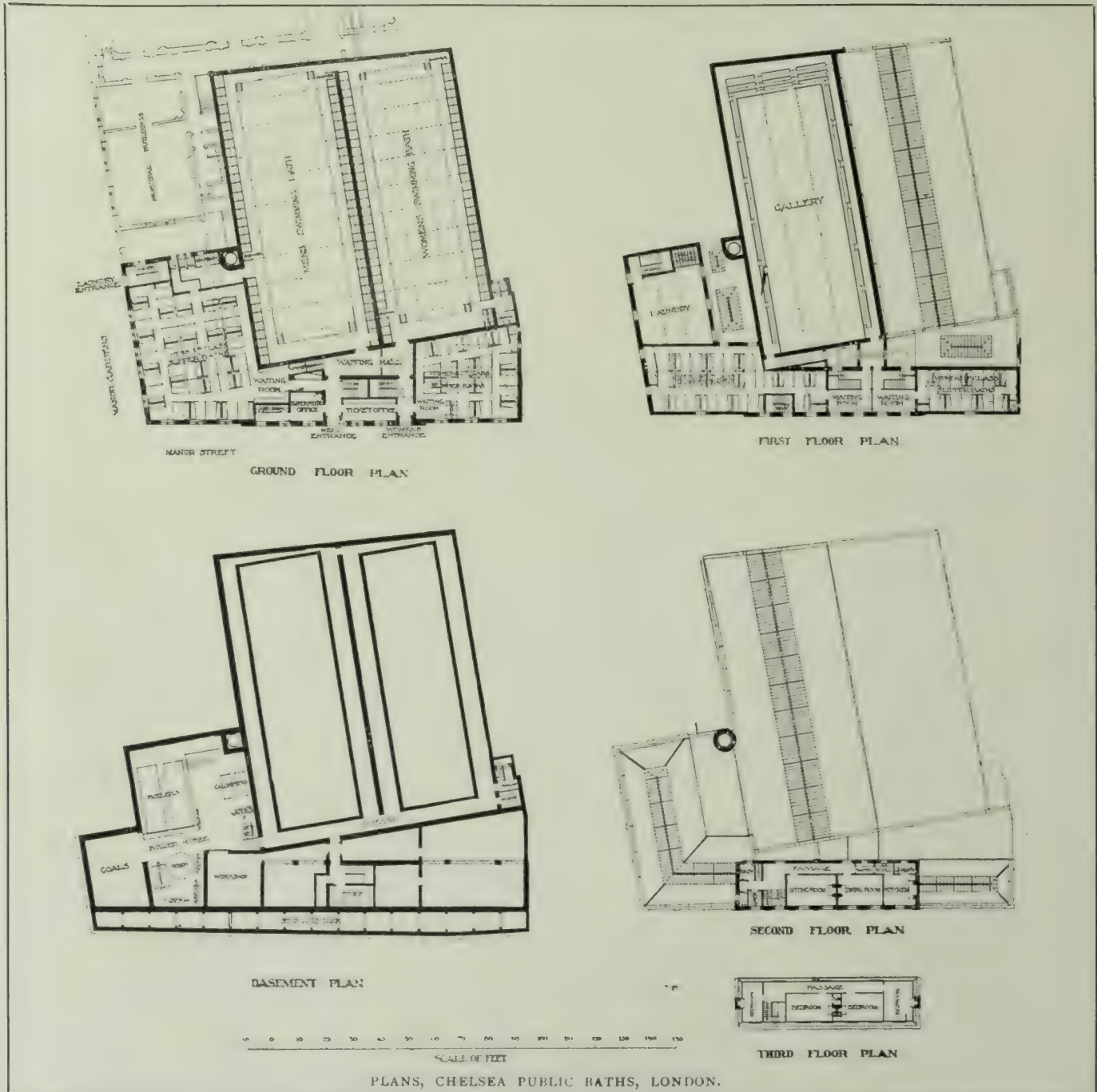
Owing to the strong feeling of class distinction on the

is now generally accepted in England as the correct one, *i. e.*, separating the entrances but with one controlling office for both waiting-rooms. The entrance to the laundry is generally separated and occasionally used also for the second-class baths. One of the typical baths of the earlier nineties is the London Hornsey Road Baths. The architect, A. H. Tiltman, has grouped around the quadrangle the various departments of the establishment diverging the different classes of bathers.

The first-class plunge room is of the commonly ac-

cepted English type with dressing compartments off the runway to the pool. It is interesting to note that emergency exits have been provided to conform to the requirements of the building laws on Assembly Halls, for in the winter, when the attendance falls off, the plunge room is converted into a lecture hall and place for entertainment, and the balcony provides additional room for spectators. The modern plunge baths of the first class

all classes form over fifty per cent of the total bathing capacity, and the large space required for this considerably decreases the efficiency of the establishment. A considerable item was the enormous amount of water required for these baths, in one year exceeding an outlay of \$6,000. It was eventually found necessary to use Artesian wells and pumping, which has cut down this item of expense nearly fifty per cent. This question of wells



are, as a rule, thus utilized throughout England.

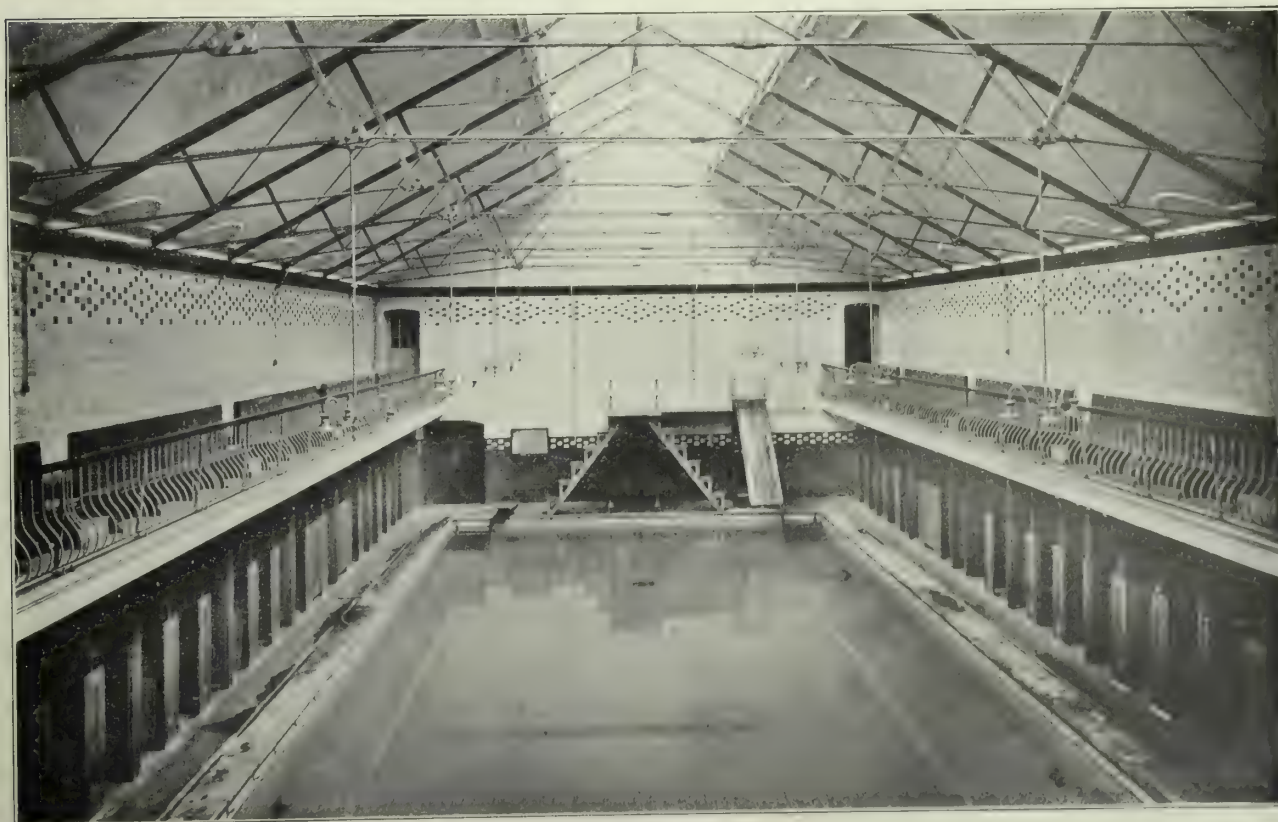
The second-class baths in the Hornsey Road Baths are most inconveniently placed at the extreme end of the building with the only access by means of long and irregular corridors. The dressing compartments for the second-class pools are in a separate room, an arrangement which appears to be superior to the ordinarily accepted English arrangement. The tub baths or slipper baths of

and pumping has not as yet received the attention it deserves by the municipalities in this country.

Of the same period of construction and similar in general type are the Kennington Road Baths, also on an irregular plot of ground. This establishment having a frontage on two streets allows better access and easier distribution for both classes of bathers than does the Hornsey Road Baths. The different departments are



THE MAIN FACADE.



THE SWIMMING POOL.
CHELSEA PUBLIC BATHS, LONDON.

conveniently placed with the exception of the woman's second-class baths. The public laundry and wash house of these baths having an interior position with court and skylight openings, are also inconveniently placed. The plunge room is similar in its general arrangement to the Hornsey Road Baths and the dressing compartments off the runway to the second-class pool are open boxes similar to the general continental custom for second-class baths.

The Tibberton Square Baths seem to offer the most practical and simple solution of the English bathing problem at this period of development. The departments are easily accessible, the long corridors have been partly eliminated, the plunge rooms are conveniently placed and the laundry particularly so for light and air. Cross ventilation might have been obtained by extending the rear court, though sacrificing a small part of the laundry space for this purpose. The tub rooms are very properly placed on the second story, as this form of bath may be considered a luxurious feature of the establishment. The isolation protects this class of bathers from the disturbing noises of the plunge room, which are always objectionable when these compartments are adjacent to the plunge room.

In the latest period of bath development in England we find most of the facilities of the early nineties, with the addition of gymnasiums, club rooms, small libraries or reading rooms, and occasionally rooms for municipal purposes. The desire to provide facilities for the different classes naturally produced a most elaborate and complicated structure.

Tiltman suggested a remedy for this over-centralization, and his views are also of value for cities of the first class in this country. He said that the general public cannot be expected to go more than half a mile for their baths and laundry, and as the majority to be benefited are of the very poor classes, they are often repelled by these ornate and elaborate structures. He suggested a central establishment for any particular section of the city with a group of small unpretentious buildings as auxiliaries, placed at convenient and proper distances, depending upon the character and density of the population. The central establishment should serve as an administration building for the group, and should be prominently and conveniently located on the main thoroughfare, and provided with baths of various forms, a public laundry and a bath laundry for all purposes. The small bath buildings were to be economically equipped with a small number of shower baths, or alternately provided with tubs and showers.

Tiltman's suggestions were not adopted by the municipality, but the discussion resulted in a more simple and rational type of building, of which the Haggerston, Old Kent Roads and Chelsea Baths, recently completed, are good examples.

The Haggerston Baths in the environs of London are particularly interesting as showing the introduction of separate shower compartments, though they still retain the use of the tub bath. A reaction had set in in regard to the extravagantly large English pool baths, as, for example, the Battersea Pool, which was 50 feet by 150 feet in water area and contained some 250,000 gallons of water, a volume which furthered the sanitation of the bath, though the expense of replenishing and heating the water was a considerable item. The difficulty of properly

heating such a large volume of water was the reason that this and other English pools were not generally used for bathing purposes during the winter months, and so the true purpose of the institution was impaired. The water area of the Haggerston Pool is 35 feet by 100 feet, now accepted as the standard dimensions by the English authorities. The plan shows separate entrances provided for the sexes, with a superintendent's room in common. Separate waiting rooms are also provided for the tub bathers, with a small clubroom adjoining the first-class plunge. The dressing compartments and one or two shower compartments off the runway, and spectators' balcony illustrate the adherence to the early English type of plunge rooms. The access to the various departments of this bath is most direct. The laundry is properly placed on the first floor off the main street with an admirable arrangement of the washing, drying and mangling rooms. For simplicity this bath is exceptional among English examples.

The Old Kent Road Baths show the advantage of a corner site with ample frontage, particularly for the efficiency of the numerous departments of the English establishment. The first-class pool room, considering its winter purposes of entertainment, has been planned with its long side on Marlborough Road with an outside corridor provided with the necessary emergency exits. The entrances to the first-class pool and to the first, second and third class tubs for both sexes are from the Kent Road. The entrances to the laundry and second-class pool are from Marlborough Road. In this bath the women's tubs are arranged on the first floor and the men's three classes of tubs on the second floor. For convenience and ease of supervision, the first-floor plan is to be commended, but the second-floor arrangement shows a very inaccessible position of the men's second and third class tub rooms, resulting from the intention to control from the Kent Road in preference to the Marlborough Road entrance. Clubrooms are again in evidence and suggest recreation purposes rather than the strictly utilitarian. The shower bath is again conspicuously absent. The plunge room is used, as is customary in the winter, for lecture purposes. In addition it is provided with a movable stage and fireproof curtains and complete lighting equipment for dramatic entertainment.

The Chelsea Baths, completed in July, 1907, are simple and economical in plan, still retaining provision for tub and pool bathing and public laundry purposes. Foot and needle baths as an auxiliary to the pool bath—a recent innovation from Germany—have been introduced into this institution. Hot air baths, the vapor or Turkish baths—another luxurious feature—have also been incorporated. The façade is simple in character, expresses its purpose well and is one of the few successful English examples.

In order to better understand what an important part the bath house has played in the social economy of England, a comparison of expenditures for hospitals and baths in the early nineties is of value:—

FROM 1890-1894, INCLUSIVE.

	Loans raised.	Loans outstanding.
Baths, wash houses,	\$2,994,941.00	\$6,297,324.00
Hospitals,	1,940,541.00	4,558,864.00

While this proportion of appropriation for public baths to hospitals in England has not been attained on the continent or in America, the growing appreciation of the bath system as a prevention of disease is becoming more and more evident, and it is believed that public moneys can be put to no better use than that of bath sanitation. The curative value of the bath in its various forms has long been recognized, but in its disciplinarian and strengthening qualities to the human race lies its value in the future.

In our day it has been left to Japan to indicate to the so-called civilized nations, with their advanced medical propaganda, a method of applying sound principles of sanitation. In the late war no battle commenced without the preliminary bath. The results obtained, on consideration of aseptic principles, have been remarkable and inestimable. It may be that in the near future, owing to the efforts of Lasser in Germany, Vashar in England, Rohe and Baruch in America, who have blazed the way for a universal adoption of a perfect system of bath sanitation, — that buildings of this class erected for the prevention of disease may render unnecessary the

construction of buildings for curative purposes the hospitals.

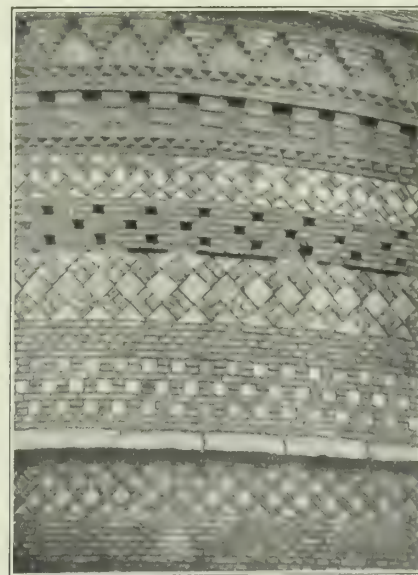
We find that the principal development in English baths during the past century is in the ample swimming facilities provided, in the sanitation and perfection of their plunge rooms, and in the improvements of their public laundries and the various machines and appliances for these purposes. On the other hand we find an adherence to the antiquated inside corridor with the dressing rooms off runways to pool, meager shower-bath facilities, and, as a rule, complex interiors and over elaborated exteriors. This is owing, no doubt, not so much to defect in plan as to a result of providing too many facilities. An expensive exterior, in addition to luxurious interior appliances, represented a large outlay to the community with no corresponding return, and it would appear that the development of the bath house in England was again in danger of overreaching itself,—the stern lesson of Roman decay seems to have been forgotten. Numerous protests for reform have encouraged the building of baths on more simple lines, but the complicated and elaborate English bath shows little diminution in number.

Brickwork Details—III.

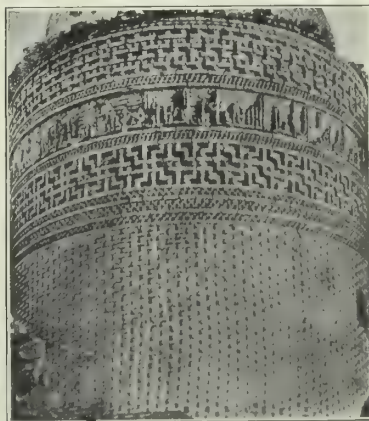
BY HALSEY WAINWRIGHT PARKER.

BRICK BALUSTRADES.—Balustrades built of brick are often of interesting design whether of successive piers, or piers with ornamental panels between, or thin walls with perforations. In the latter case they should either be placed at the top of a wall so as to be out of reach or set in cement supplemented by clamps, etc. The diaper patterns of brick walls make excellent balustrades if the centers of the chequers, etc., are omitted; and successive arches forming scale patterns also lend themselves to balustrade treatment. These scale patterns may be varied in many ways—for instance, the alternate rows can be different size if a straight course be placed between them, or patterns may be alternated between the small arcades, or alternate large and small arches may be used. There is an example of scale pattern, arch above arch, in the interior of the mosque at Cor-

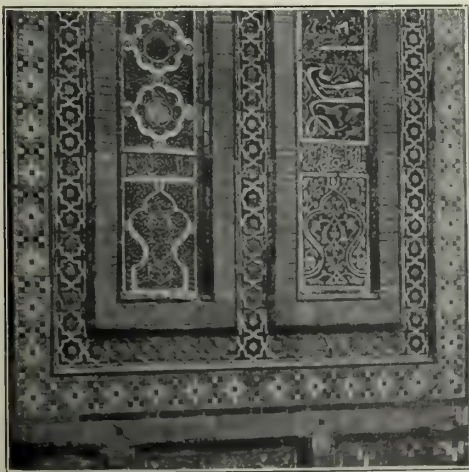
scale, and the effect of successive arch lines in perspective is very rich and interesting. Skeleton walls of this character can be made very effective. The reveals of brick balustrades, while



DETAIL OF FRENCH DOVE COTE.



EXAMPLE OF PERSIAN BRICKWORK.



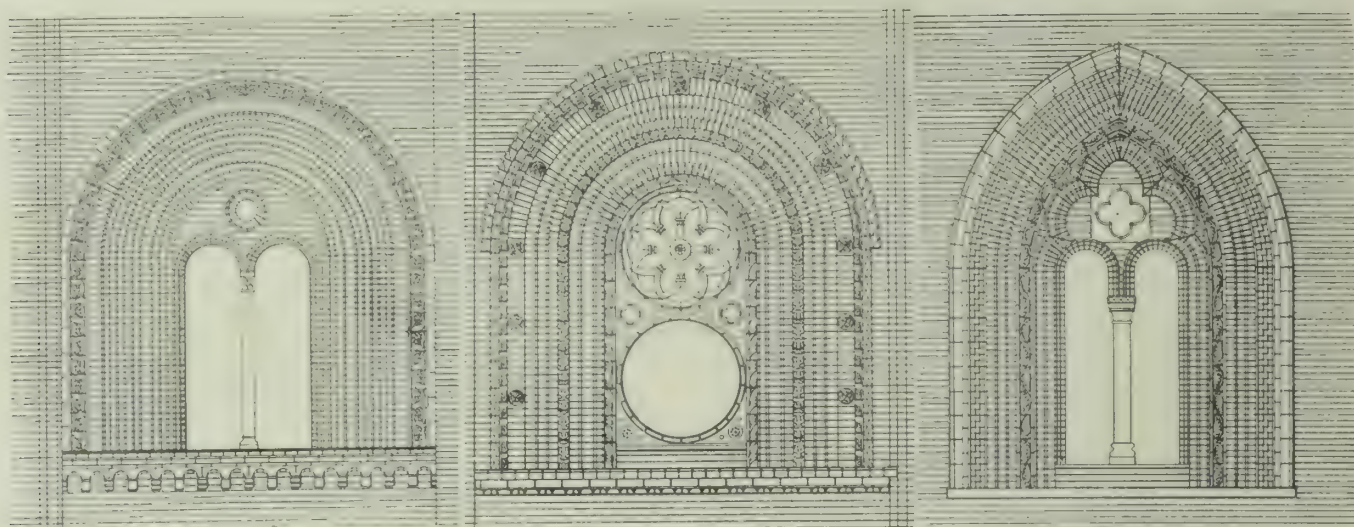
EXAMPLE OF PERSIAN BRICKWORK.

dova—over the colonnade of the numerous aisles. The wall over these colonnades is actually a brick lattice of large

finned to the outside surfaces only, the reveals being left without glazes. The perforations at the tops of the pigeon houses in French manors are often excellent in detail.

BRICK PARAPETS.—The machicolations of fortified walls and towers are often of brick, consisting merely of openings cut down through the parapet wall to allow the defenders opportunity to repel attack while protected

necessarily of eight inches in thickness to secure stability, should not be greater than the widths of the openings between the solids if any effect of lightness is desired. The introduction of glazed brick in the balustrade is especially effective, when the color is con-



WINDOWS IN THE DUOMO, CREMA.

by the masses of high wall between the openings. In Italy there were two marked terminations for these sections of protecting the walls, each of which indicated the party to which the fortification belonged. The Guelphs, or followers of the popes, built square-topped crenellations, while those of the Ghibellines, or followers of the Emperor, were cleft or swallow-tailed in shape. Oriental parapets were usually stepped.

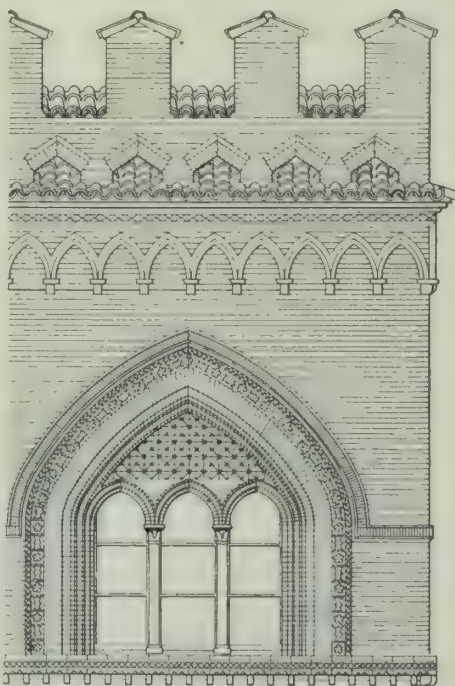
The alternation of light and shade in these parapets make an interesting silhouette against the roofs and the sky and enrich an otherwise severe line, in much the same manner as a classic cheneau. There can be great variety in the detail, as elaborate traceries of brick patterns can be used. As these parapets have lost their original purpose and are now ornamental features only, there is no need for heavy masses of brickwork in their design, and while the alternate

tory, as the multiplicity of joints indicates small cohesion in slender forms, and large course forms are usually out of scale with the building. Tracery of molded brick is somewhat better than of ordinary brick, but is seldom successful.

The skeletons of the tracery are of the simplest description, and the difficulty of securing the bricks together makes this work somewhat of an affectation, wood, stone and metal all being better fitted for the purpose.

The windows of the Mohammedan towers of the Giralda in Seville, and of the Alminar in Cordova, as well as those of numerous Moorish buildings in Spain and in Northern Africa, are treated with extremely interesting, but in most cases unconstructional, brickwork. Molded and unmolded brick tiles and terra cotta are all associated in these windows, and there is great latitude shown in the designs — which indicate the infinite possibilities of line and color in brickwork.

BRICK COPINGS. — Copings and sloping surfaces, such as the slopes of buttresses, etc., can be laid in two

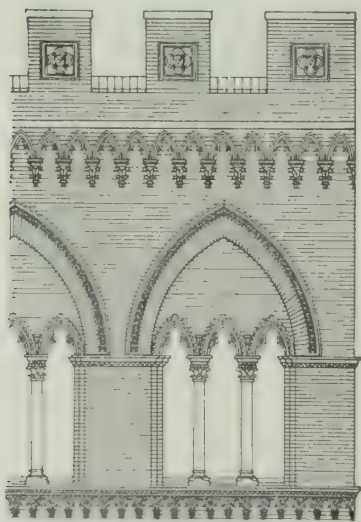


FROM THE PALAZZO GONFALONIERI, CREMONA.

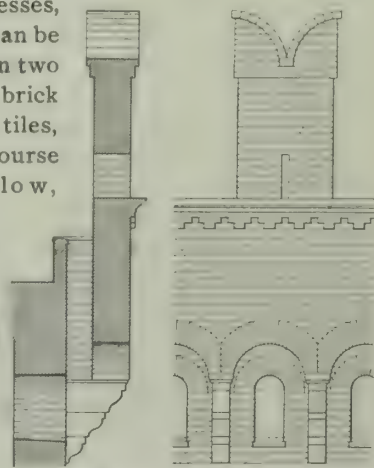
masses are retained to obtain scale, within the profile perforations are possible. Focussed detail of glazed brick upon the axes of the units produce a rich crown motive to the cornice or to wall.

BRICK TRACERY IN WINDOW OPENINGS. — Brick tracery must necessarily be crude and is seldom satisfac-

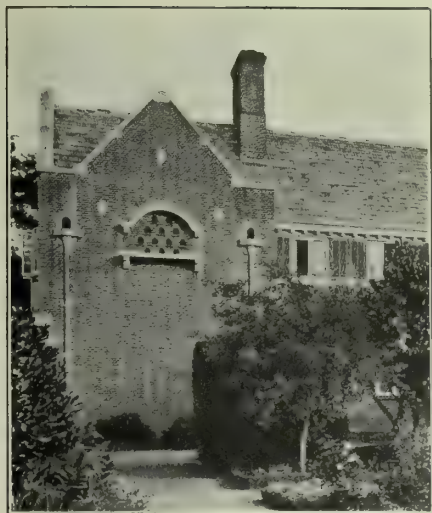
tory: first by using the brick in the same manners as tiles, making each successive course overlap the one below, the bricks being laid as inclined stretchers across the trend of the wall, or they can be laid as inclined headers, the heads sloping with the pitch of the coping, etc. Both should be set in cement, on account of the exposed



FROM THE PALAZZO BUONSIGNORI, SIENA.



FROM THE CASTELLO, PAVIA.



DETAIL OF ENGLISH HOUSE.

Such crestings are very rare, and weather badly, and are practically worthless.

BRICK COLUMNS. — Circular piers of bricks of large diameter are built merely to avoid corners, but columns of smaller diameter have a crude appearance, and are better made of other material. A small brick column seems in danger of disintegration because of the number of its joints. Vertical joints are not advisable in any columns, as they suggest weakness. Columns of special bricks with curved surfaces are but little better. Piers with polygonal plan, when built of brick, require considerable plan area before they appear sufficiently strong.

There occur examples such as the buttresses of the Cathedral at Albi, in which the light and shade upon the columnar forms are admirable in effect, but in this, as in other similar cases, the mass of brickwork is sufficiently large to make the joints unobtrusive.

BRICK CHIMNEYS. — The treatment of chimney tops above the roofs has been much neglected in American work, while in Eng-

land, France and Germany the chimneys are made very decorative in effect. As they are vertical motives, the treatment is usually either in long pilaster lines, or in long panels, and many of the best chimneys are built upon a plan in which the surfaces are diagonal to the face of the chimney.

BRICK CRESTINGS. — Brick crestings upon ridges are unusual, terra cotta, stone or metal being better adapted to the purpose, but occasionally a crude cresting appears, formed by projecting alternate courses laid across each other, log-cabin fashion.

land, France and Germany the chimneys are made very decorative in effect. As they are vertical motives, the treatment is usually either in long pilaster lines, or in long panels, and many of the best chimneys are built upon a plan in which the surfaces are diagonal to the face of the chimney.



AN ENGLISH HOUSE.

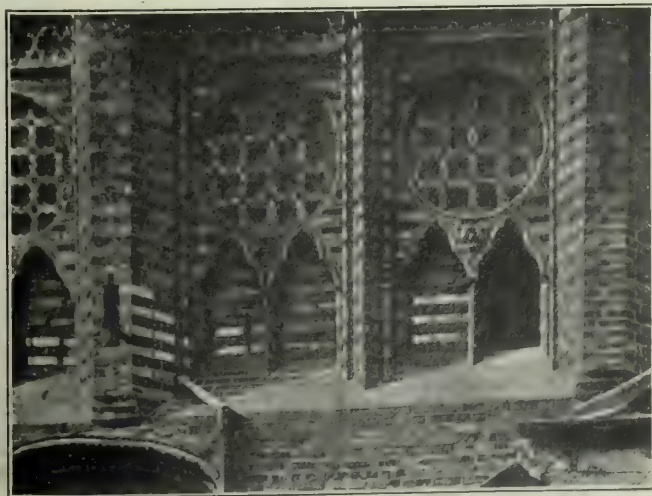
There are especially fine examples of these chimneys to be found in English country-house architecture, especially in the designs of Mr. Norman Shaw and Mr. Pearson. In the earlier work, the best of the chimney designs occur before the time of the Classic Revival, as the formality of the Classic forms was not in sympathy with the picturesqueness which is characteristic of brickwork. The detailed brick chimneys may therefore be sought in work done under the Tudors and the Stuarts.

STEPPED GABLES — These are to be found in North Germany and in Holland, of the most picturesque forms, with silhouettes of combinations of straight steps and simple or compound curves, and frequently with perforations near their outer edges. The successive steps are often arcaded, and are also accented by the introduction of glazed or colored bricks, either as borders or as foci.

MOLDED BRICK — The moldings upon brick are usually simple single molds, such as plain chamfers, quarters and half rounds, cavettos and single cymas or ogees. Small



OLD ENGLISH EXAMPLE.



DETAIL, TOWN HALL, LUBECK.



EXAMPLE OF BRICK PANEL WORK, GERMANY.



PICTURESQUE ENGLISH TYPE.

large scale in the moldings of the molded brick as they are designed to be associated with ordinary brick. Also as edges easily broken are to be avoided, delicacy or sharpness of molding cannot be expected, and the curves are robust and are usually parts of circles. But from combinations of these simple forms, most interesting details may be obtained. Molded brickwork develops naturally a similar set of combinations of moldings as those in stonework—with the exception that soffits of great projection are impossible in brick. For this reason, the facial angles of groups of moldings in brick are usually greater than of similar groups in stone, and multiplicity of moldings compensates for lack of projection and consequent shadow.

CORNICES.—As it is impossible to obtain in brickwork heavily projecting cornice soffits, excepting when supported by corbels set near together, the brick cornices do not resemble classic cornices, excepting, perhaps, in having the same integral factors of bedmold, fascia and corona. They are necessarily flatter than classic cornices, the facial angle of the cornice being greater than forty-five degrees. The bedmold becomes elaborate, being made up of corbel courses, often one above another, and the motives resemble the cornices of military building more than they do those of the orders of architecture. The molded brick tend to greatly refine these cornices, and are used not only in the lines of the long moldings, but also in the stepped courses of the faces of the corbels. Many of the motives of stone Romanesque architecture, such as the broad paneled lintels, the corbel courses in which small arches are sprung from corbel to corbel, etc., can be readily adapted in brickwork, and these arcaded corbel

fillets seldom occur, as they are likely to be broken in delivering the brick, and in the coarser clays used in brick making flaws would destroy sharp arrises. The fillets, therefore, are built of the unmolded brick, and are at least two inches broad, and this fact alone creates a

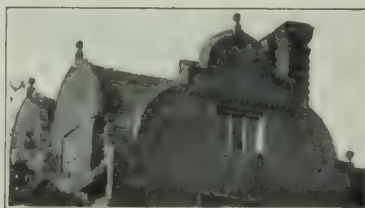
courses not only create vigorous shadows which could not otherwise be obtained in the material, but they can follow the rakes of pediments and gables, and, if on sufficiently small scale, may be carried around arches. Apart from the moldings of simple curves, the corner rolls on molded brick are



DETAIL OF ENGLISH COTTAGE.



AN ENGLISH COTTAGE CHIMNEY.

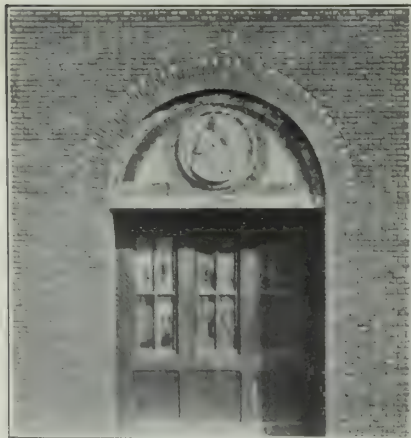


DETAIL OF ENGLISH COTTAGE.

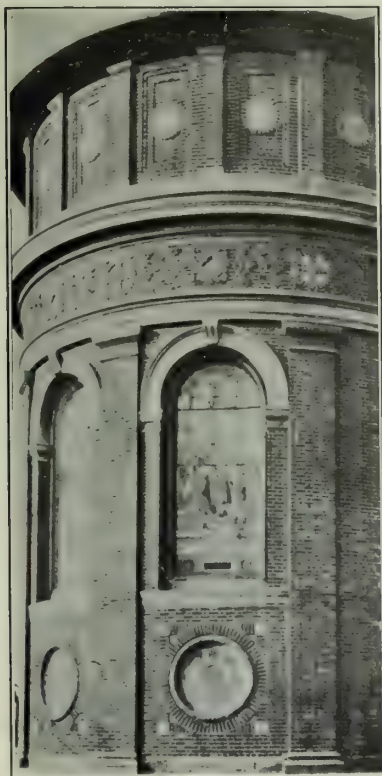
of the most value in combinations. These are either simple roll moldings or roundels, or roll moldings with concave hollows on either side of the roll. They make admirable inside edges to arches, and if laid over each other in piers, produce delicate colonnettes. The quarter round hollows are best in balustrades or in window traceries, or as foils to the convex moldings. The repetition of the same molding in successive bands, which is introduced in much modern brickwork, is apt to be monotonous and ineffective. In the brickwork of Northern Germany at Lüneburg and Lubeck, Wismar and Stralsund, square corners are carefully avoided around openings, a simple quarter round molded brick being used. The effect is to soften shadows, but it is rather coarse and large in scale. It does, however, produce a very typical brick architecture.

Brick with dog tooth chamfers on their corners produce brilliant fringed edges in light and shade. The bricks with stamped patterns are actually a crude variety of ornamented terra cotta and are to be considered as modeled ornament. They afford variety and contrast to the common brick, as do fragments of marble or glazed tile or metal set into the brickwork.

BRICK VAULTING.—The surface of brick vaulting may be considered as the soffits of arches and capable of receiving similar patterns, excepting that it is not advisable to panel the surfaces, as heaviness of effect results. In groined vaulting the ribs of the vault must either be of ground brick or of brick especially made for the purpose. Herringbone pat-

ENTRANCE TO STUDIO BUILDING.
Harold Van B. Magonigle, Architect.

MCKIM, MEAD & WHITE, ARCHITECTS.



DETAIL OF APSE, COLUMBIA
UNIVERSITY CHAPEL.
Howells & Stokes, Architects.

where, offer suggestions for designs which could be effectively produced in brickwork.

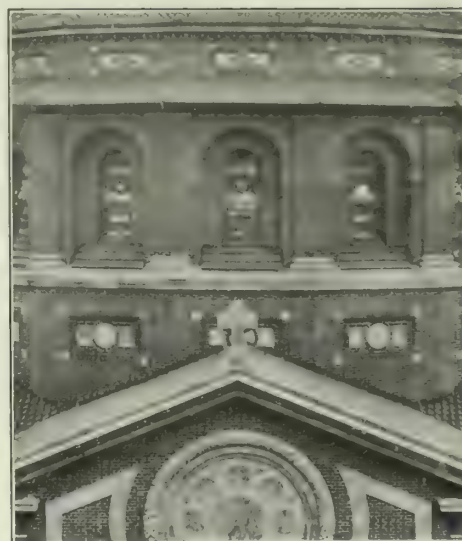
TONE IN BRICK.—As brickwork is a mosaic made up of definite regular units, the color or tone of each unit should be even throughout the surface of the unit, effects of change of tone being made by combinations, not by graded tone in the individual brick.

The fire flashed brick, dark at one end and light at the other, tends to

terns are especially effective in vaulting.

BRICK PAVING.—Paving patterns can be very considerably freer in design than wall or soffit patterns, as the element of apparent structural strength is removed; in fact, almost any mosaic patterns can be made in brick pavements, and the scale of the pattern increases, as the brick can be laid on their sides without the necessity of headers to secure bond as in walls. Many of the patterns in the marble mosaic floors of St. Marks in Venice, the Christian basilicas in Rome and else-

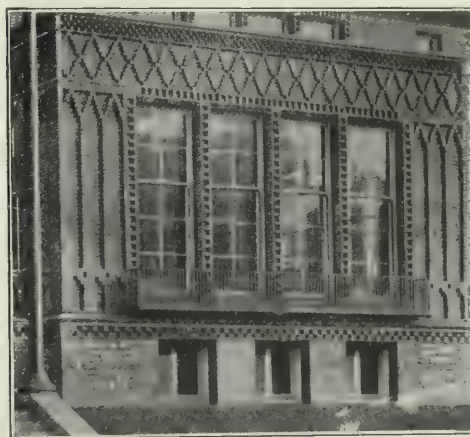
subtle when variations are slight. The contrast of black and white checkered patterns is in most cases disagreeable, but the same patterns become agreeable in two tones which are but slightly different from each other. The introduction of bench brick in lines or spots should be very carefully studied, for dark courses need to be lighter than the shadows or the shadows are ineffective and valueless. Upon the other hand, the introduction of dark brick in



DETAIL OF DOME, COLUMBIA UNIVERSITY
CHAPEL.
Howells & Stokes, Architects.

the shadows, to intensify them, frequently gives brilliancy of definition. Dark courses, therefore, are of value below projecting bands rather than above them, and dark brick are preferably placed between corbels rather than in the corbels. The alternation of dark and light brick in arches goes far to destroy the lines of the arch, though an occasional dark line dividing the arch into voussoirs gives scale to the surface.

The primitive rule which Owen Jones states in his Grammar of Ornament, *i.e.*, that projecting surfaces should be of light tone and receding



DETAIL OF SCHOOLHOUSE, ST. LOUIS.
William B. Ittner, Architect.

disturb surface, texture and pattern, and has no intrinsic merit in itself.

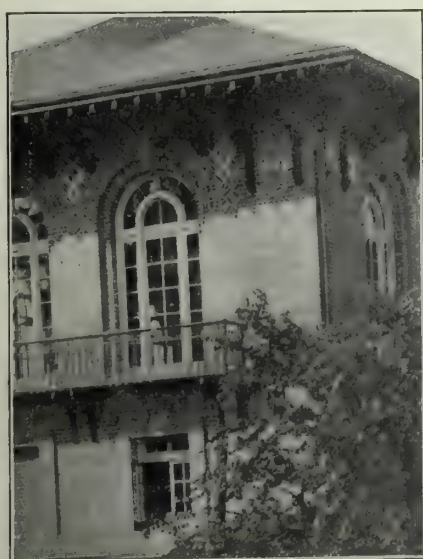
The usual patterns of brickwork are so simple that they can be deciphered when all the brick are of one tone and color, and a very slight difference in tone or color makes them perfectly definite. It follows that violent contrasts of color or tone are to be avoided, the effect being much more

surfaces of dark tone, is especially applicable to brickwork. Opening and edges are best defined with light tones.

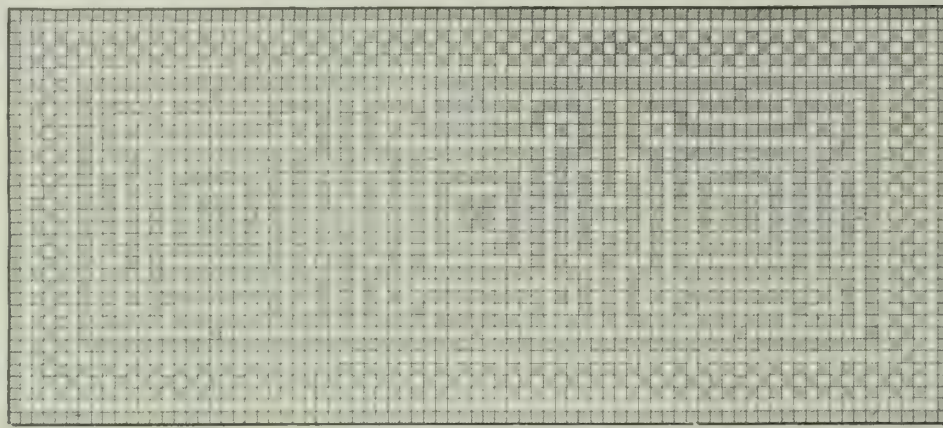
COLOR.—The color of the brick is necessarily that of the clay, which ranges from light grays through the tones of dark gray to browns, and light straw colors to deep reds. The introduction of iron filings into the clay produces



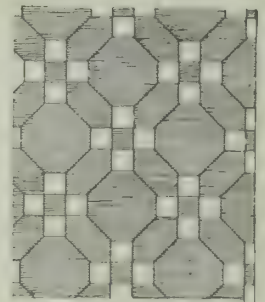
ENTRANCE TO FACTORY BUILDING.
Pond & Pond, Architects.



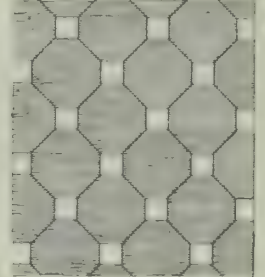
FIRE STATION AND AMUSEMENT HALL.
Lord & Hewlett, Architects.



4 Squares red & white mosaic tile - Palazzo Pitti - Florence



RED AND WHITE
PAL. PITTI - FLORENCE

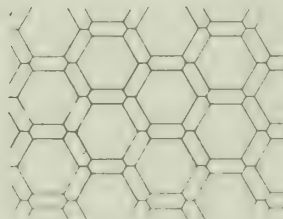


RED AND WHITE
PAL. PITTI - FLORENCE

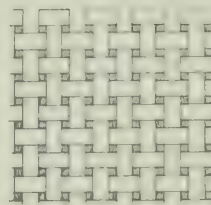


PAL. PITTI - FLORENCE
RED AND WHITE TILE BORDER

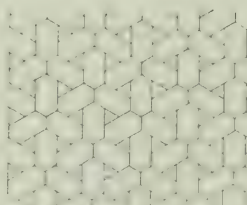
A COLLECTION OF PAVEMENTS



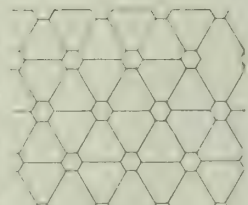
Red and white tile
PRATO



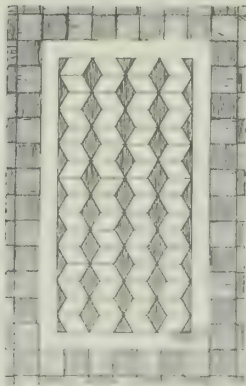
RED AND WHITE TILE
HOUSE IN ROME



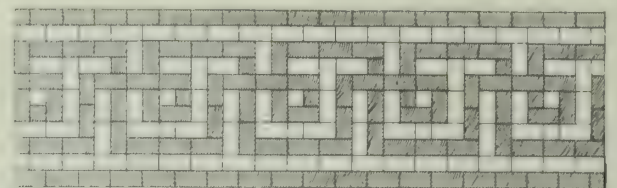
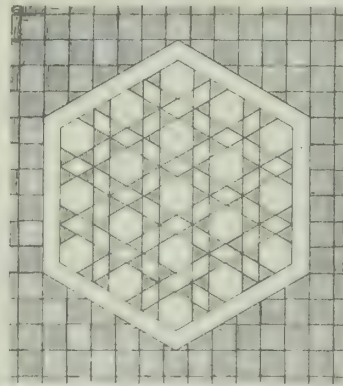
Red "brick" tile
HOUSE IN FLORENCE



Red "brick" tile
House in Florence



RED AND WHITE MOSAIC TILE - PALAZZO PITTI - FLORENCE



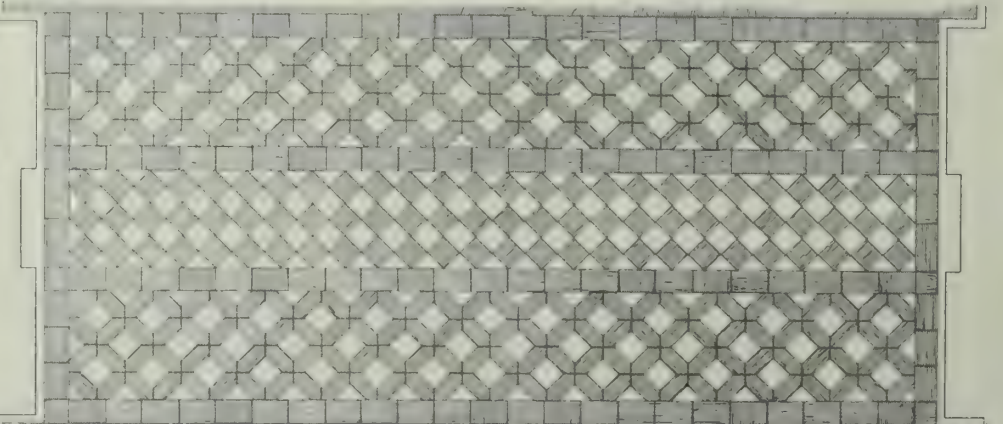
ROME



RED AND WHITE MOSAIC TILE - ROME



RED AND WHITE MOSAIC TILE - PALAZZO PITTI - FLORENCE



PALAZZO FARNESE - ROME

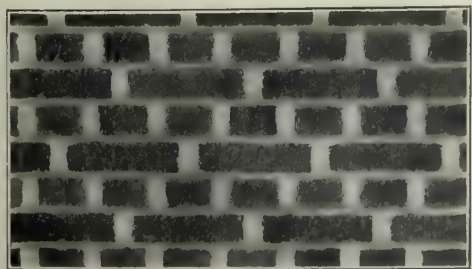
EXAMPLES OF ITALIAN PAVEMENT PATTERNS.



INTERIOR COURT TREATMENT.
Wilkinson & Magonigle, Architects.

taken of this opportunity. Such contrasts can easily be overdone, but in skillful hands should produce very agreeable results. In the buff brick there are many examples of hot yellows, strong orange tones, etc., which are disagreeable and aggressive in large masses, and in the mottled brick there is often an effect of bituminous ooze which is to be avoided. As a matter of fact, the gray brick and red brick are best both in tone and color.

GLAZED BRICK.—Glazed brick have either transparent or opaque glazes. If transparent, the glaze merely enriches the color of the brick; if opaque, the result is a faience which can be in any color. The glazes, if left brilliant, are disturbing in large surfaces because of the reflection of light, and in all such surfaces dull glazes should be used. The texture of the surface of glazed brick is of a totally different character from that of unglazed brick, and this fact should be considered in associating the two together. The glazed product is a finer material and has the same comparative quality with the unglazed that silk has to wool. It should be used in small quantities as contrast only: in fine lines, borders and centers of ornament. The interstices of the structure, such as span-drills, tympana and panels, offer opportunity for the



WIDE JOINT BOND.

mottled surfaces. With so wide a gamut of color and tone great variety in effects produced by contrasting brick of different clays is possible. Very little advantage has been



ATHLETIC CLUB, ROCHESTER, N. Y.
Bragdon & Hillman, Architects.

introduction of glazed brick patterns. In North Germany green glazed brick are used effectively as trims around openings in red brick buildings.

FROM the recently discovered diary of Architect John McComb, Jr., it is apparent that when the New York City Hall was built the duties of the architect were as varied as they are to-day. In turning the leaves of this old record a reader of the present generation sees a familiar aspect in the difficulties that beset the architect of a hundred years ago. "Cal-



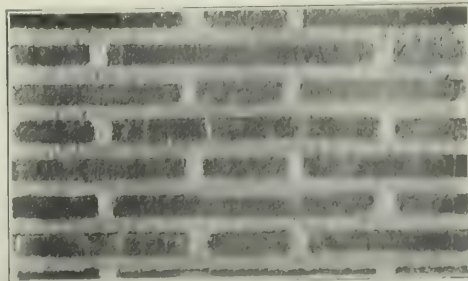
DETAIL OF WAREHOUSE WALLS.
Argyle E. Robinson, Architect.

culations of expenses must accompany plans," so ran the advertisement the building committee issued in order to obtain a design. And there was the usual vacillation on the part of the "City Fathers" concerning such radical things as the length and depth of the building, and the kind of stone to be used.

We see the architect spending half of his time at the building and half at the quarry; we see him urging the quarrymen to continue shipping the marble through the winter by sledges over the snow; we see him engaging scaffolding poles; and we imagine between the lines of his handwriting many other things he did which mixed feelings may have restrained him from recording.

McComb's compensation for all he did was six dollars a day for every day he worked. Lemaire, the sculptor who carved the capitals,

got four dollars a day. But there was other compensation, even though they themselves were not to enjoy it. Little was it realized then that the building wrought was to be pronounced by architects a hundred years later the gem of the city. Thus it stands to-day, invulnerable, by virtue of its intrinsic beauty, against the attacks of innovators and scheming politicians.



LONG STRETCHER AND WIDE JOINT.

The Theater Building Competition.

THE SUCCESSFUL COMPETITORS.

RUSSELL EASON HART, who was awarded the First Prize of \$500, is at present connected with the office of C. B. J. Snyder, architect for the School Board, New York City, and at the same time he is taking a special course in architecture at Columbia University. His early training was received in the offices of Noland

Charles Romer and Frederick J. Feirer, who were awarded the Second Prize of \$200, are both students in the Atelier Hornbostel, New York City. Mr. Feirer received his early training in the offices of Palmer & Hornbostel, and Howard Greenley, New York City, — while Mr. Romer received his in the offices of L. E. Jallade, Welch, Smith & Provot, Reed & Stem, R. S. Stephenson and A. N. Allen, all of New York City.



RUSSELL EASON HART.



FREDRICK J. FEIRER.



CHARLES ROMER.

& Baskerville, Richmond, Va.; Cram, Goodhue & Ferguson, H. Van Buren Magonigle, Carpenter & Blair, and in the Atelier of Frank E. Perkins, all of New York City. At present he is a student in the Hastings Atelier, under John V. Van Pelt.

Walter Valere de Mari, who was awarded the Third Prize of \$100, is at present located in San Francisco. His early training was received in the offices of Warren & Wetmore, Palmer & Hornbostel and the Atelier Hornbostel, all of New York City.

RAFAEL GUASTAVINO.

RAFEL GUASTAVINO, originator of the cohesive tile-construction which bears his name, died at his home in Asheville, N. C., February 2, 1908. He was born in Valencia, Spain, in 1842. Coming from a family of musicians, a portion of his early life was spent in the study of music. At seventeen he entered the office of D. José Nadal, an architect of Valencia, and from there he went to Barcelona, where he took the full University course, and afterwards entered the School of Architecture.

Having embraced the profession of a builder as well as architect, as was then customary in Spain, he was largely engaged for many years in the erection of mills, factories, and other types of buildings, in which the necessity of fireproof construction was evident, and while erecting these he had every opportunity to experiment with concrete and tile for floor and roof constructions. He was guided by the study of the architecture of the Byzantines and Persians, whose influence had been felt in Spain from the third to the fourteenth century.



RAFAEL GUASTAVINO.

At the time of the Centennial Exhibition at Philadelphia, in 1876, a number of photographs of his work as an architect and inventor were exhibited in the Spanish government section; and having received a medal for these, he felt encouraged by that alone to visit this country as soon as he could find it convenient to do so. This did not occur until 1881.

His first work in this country was done in 1886 in a four-story private house on 78th Street, New York, and later in the Arion Club, 59th Street, whose building committee accepted his proposition, when they ascertained that with his arches they could make a saving of over \$5,000 in two floors alone, largely on account of the amount of iron that was omitted.

With this experience and a series of experiments that he undertook in New York, he commenced the study of his art along scientific lines, and endeavored to adduce formulas based on constants, which

for the first time in his experience he was able to obtain.

Mr. Guastavino was appointed architect for the Spanish Government Pavilion at the World's Fair, in 1893, at

Chicago, which was a replica of "La Lonja" at Barcelona, Spain, which was built in 1492.

At the invitation of the president of the American Institute of Architects, he read a paper before the International Congress of Architects, which was held at Chicago in 1893, on "Masonry Construction," which created a considerable amount of interest and discussion, and was considered one of the ablest papers presented. He was also appointed one of the international judges on a jury of awards for the Architectural exhibit in the Exposition.

Perhaps no better estimate of the man could be given than that by William E. Blodgett, who for twenty years has been associated with Mr. Guastavino in his work. He says:

"I distinctly remember my first meeting him some twenty years since, at the time he was starting on his first really large and interesting task in the line of construction which he originated and developed, the Boston Public Library. This building is still in some ways the best illustration of the possibilities of the timbrel vault construction, because of the diversity of its problems, the barrel arches, groined arches, and domes, all of them structural in their character, carrying the floor load, and also because of the fact that it was the first instance, in this country at least, of the use of that finished repressed and glazed tile development which latterly has become so largely a component part of the development of the system.

"Contrary to the general impression as to the Spanish character, I found him an extraordinarily alert and active man, both physically and mentally; in fact, I never met a quicker man in all my experience; a very hard worker day and night himself, he demanded the same kind of service from those associated with him —

always industrious and never idling. While these characteristics softened very slightly with the passing of the years, they obtained up to the time of his decease, and though recently he did not devote himself so exclusively to the business of the company with which his name is identified, he always maintained a supervisory oversight, and spent the remainder of his time, not in ease, but in other forms of activity, to which his very versatile mind easily lent itself.

"Mr. Guastavino was an ardent lover of the truthful and the beautiful in the arts, and felt that his chosen profession of architecture was one of the noblest callings of man, and to it he gave all the wealth and energy of his resourceful nature."

As the personality of Mr. Guastavino was so largely identified with the type of construction which he originated, the inquiry naturally arises as to whether there are those left who can successfully carry on and develop the system with which his name has been so long associated. Some ten or a dozen years ago, the business was put into a corporate form, and his son, bearing the same name, has been vice-president and general superintendent of the company, having in charge the laying out and designing of the work and the superintending of the larger and more difficult problems, so practically the burden of this technical work has fallen on him during these years. He has stepped into his father's place as president of the company. Mr. Blodgett, who for the past twenty years has been the business man of the concern, and treasurer of the company, will still have charge of these affairs as before. With the company retaining the personnel which has been a part of the equipment for many years, so far as the execution of contracts and the interests of the profession are concerned, but little, if any, change will be noted.

Editorial Comment and Selected Miscellany

THE PARKER BUILDING FIRE.

IN our last issue we made some brief comments on the burning of the Parker Building in New York. Even the most casual study of this structure is sufficient to convince one that it ought never to have been included among first-class buildings. The interior framework is composed entirely of round cast-

cases the cast-iron flanges supposed to hold the beams were broken entirely away. There was no girder covering used, the bottoms of

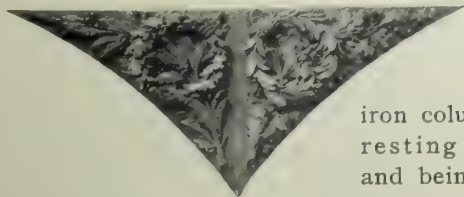


DETAIL BY CLINTON & RUSSELL, ARCHITECTS.
New Jersey Terra Cotta Co., Makers.

the girders being flush with the bottom of the terra-cotta arches and the plastering was carried level across the flanges of the girders without even metal lathing to hold it in place. The girders being unprotected, many of them deflected by the heat. The pent house which occupied a large portion of the roof was constructed with light columns of steel angles only $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{1}{4}$ inches, unprotected. These failed at a very early stage in the fire, the whole house crashing to the main roof and thence breaking through, probably causing the initial failure of the interior lines of columns. Floor spans of six feet were constructed with semi-porous, side construction, hollow tile arches only eight inches deep. The fireproofing of the cast-



DETAIL BY F. S. BARNUM, ARCHITECT.
North Eastern Terra Cotta Co., Makers.



DETAIL BY A. E. WESTOVER, ARCHITECT.
Conkling-Armstrong Terra Cotta Co., Makers.

in each story, including two lines of columns, was entirely destroyed and fell in a mass to the basement. In many

iron columns, the girders resting upon brackets and being bolted to cast flanges. A considerable section of the floor

iron columns consisted of a casing of two-inch porous terra cotta with apparently no tie except that afforded by the cement in the setting.

It is a libel on fireproof construction to put this building in the same category with hundreds of buildings all over the country which are built well and thoroughly, the steel work properly protected and the columns cased in such way that the covering will not peel off and drop on slight provocation. So far from this building forming any example of the failure of terra cotta to properly do its work, it is really a most decisive proof that even when terra-cotta fireproofing is applied in an unworkmanlike manner, in insufficient quantity and of insufficient strength, it is yet able to afford a very large degree of protection. It would seem as if every precaution had been taken to make the construction poor rather than to make it good. The column casings were cut repeatedly by pipes for electricity, etc.; the partitions were only three inches thick where they ought to have been at least four inches and were all cut to pieces with windows and wooden sash; the filling over the arches appears to have been of nothing but cinders and the wood flooring was blocked up on sleepers in such a manner that when the woodwork burned away heavy machinery, safes, etc., dropped down onto the arches, which were utterly unable, and never intended, to stand any such shock. The Parker Building is simply another illustration of the reckless way in which a speculative building can be carried up with a bare compliance with the law and yet be classed as fireproof.

BUILDING OPERATIONS FOR JANUARY.

INFLUENCED by national financial disturbance, the most sensitive of all industrial undertakings, building and construction, has suffered a severe depression, as shown by official reports received by the *American Contractor*, New York, and tabulated. As forecasted by the decline of stocks of every variety, the decrease in building operations as compared with January, 1907, was expected, and has materialized, to the extent of 44 per cent in the aggregate of 47 cities presented in the comparison. The indications for February are more favorable, — and a large volume of



DOMES OF POLICE HEADQUARTERS BUILDING, NEW YORK.
Hoppin, Koen & Huntingdon, Architects.
Terra Cotta by New York Architectural Terra Cotta Co.

building may be expected as the season approaches, subject only to such restrictions as are presented each presidential year.

Among the cities which scored an increase despite the financial panic are: Bridgeport, with a gain of 22 per cent; Denver, 9; Kansas City, 16; Little Rock, 6; Omaha, 10; Paterson, 28; Reading, 32; Spokane, 10; Topeka, 91. Greater New York shows a decrease of \$7,000,000, a loss of 50 per cent; Philadelphia, 61; Chicago, 21; St. Louis, 51.

IN GENERAL.

The firm of Babb, Cook & Willard, architects, New York, has been dissolved by mutual consent. A new co-partnership has been formed under the name of Babb, Cook & Welch. The new firm will retain the same offices, 3 West 29th Street.

Murray A. White, formerly connected with the office of Holabird & Roche, Chicago,

has formed a co-partnership with Burke & Horwood, architects, Toronto, Canada. The new firm name is Burke, Horwood & White.

At the Annual Meeting of the Washington Chapter of the American Institute of Architects, held on January 3, the following officers were elected for the year 1908:

President, E. W. Donn, Jr.; Vice-President, W. J. Marsh; Treasurer, F. B. Pyle; Secretary, Percy Ash.

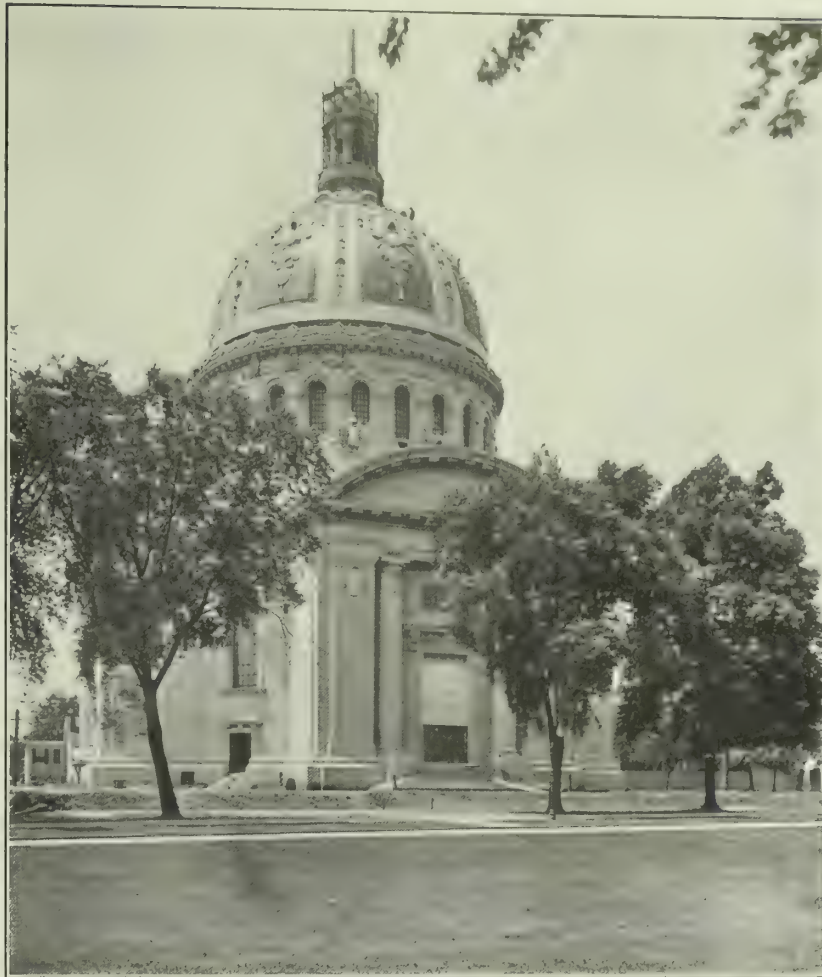


DETAIL BY WALTER E. PARFITT, ARCHITECT.
Made by South Amboy Terra Cotta Co.

Harvard University offers to members of the Architectural League of America three scholarships in Architecture. These scholarships are divided into two classes: Class A. — One scholarship which is restricted to those who can pass the entrance examinations of Harvard College. Class B. — Two scholarships for special students for which there is no examination, but a competition in architectural design to select the holders. Candidates for the above should notify the Chairman of the Committee on University Scholarships, Emil Lorch, Ann Arbor, Mich., by April 1 of their intention to take part in the competition. The Architectural League of America also has a foreign or traveling scholarship, for information regarding which apply to Professor Percy Ash, Chairman, Committee on Traveling Scholarship, George Washington University, Washington, D. C.

The Eighth International Congress of Architects will be held in Vienna, May 18 to 24, 1908. His Majesty, the Emperor, has graciously consented to be Patron. The formal opening of the Congress will be in the Chamber of Ceremonies in the I. R. Palace. A very attractive programme for the entertainment of the delegates has been arranged. The following named constitute the permanent American Committee: William S. Eames, Chairman; George Oakley Totten, Jr., Secretary; Francis R. Allen, Glenn Brown, George B. Post. Further information may be obtained from Mr. Totten, whose address is 808 17th Street, Washington.

The scope of the work which the Philadelphia Chapter of the American Institute of Architects has planned to do is a manifestation of the new spirit which seems to have seized the architectural profession as a whole. The opportunities for doing a great deal of good in a community, which come to a body of this kind, seems to have been fully realized. The programme which has been laid out by the Philadelphia Chapter could be studied with profit by the other Chapters of the Institute. It is too long to permit of presentation here. No doubt



CHAPEL, U. S. NAVAL ACADEMY, ANNAPOLIS, MD.

Ernest Flagg, Architect.

Dome of polychrome terra cotta; ribs and ornamentation in cream glaze; background of dome golden yellow. Made by Atlantic Terra Cotta Co.



ACADEMIC BUILDING, U. S. NAVAL ACADEMY, ANNAPOLIS, MD.

Ernest Flagg, Architect.

Terra cotta used in connection with granite and made uniform with that material in color. Atlantic Terra Cotta Co., Manufacturers.

the Secretary, Arnold H. Moses, 136 So. 4th St., Philadelphia, would be glad to furnish copies.

At the Convention of the National Brick Manufacturers' Association, held this month at Columbus, Ohio, the proposition to establish a School in Bricklaying at the Winona Technical Institute, Indianapolis, received very hearty support from the members. Some forty scholarships were subscribed for by the Association. This school will be opened to boys from any part of America. The Committee of the Association having these scholarships in charge are: Hon. Anthony Ittner, St. Louis; J. M. Blair, Cincinnati; and George T. Dickover, Wilkesbarre.

NEW BOOKS

MODERN BATHS AND BATH HOUSES. By Wm. Paul Gerhard, C. E. 8vo, xvi + 311 pages, 130 figures. Cloth, \$3.00 net. New York: John Wiley & Sons.

Contents. — Preface. Historical Notes on Bathing. The Purposes of Bathing. The Different Forms of Baths. The Modern Rain Bath. House and Tenement Baths. Public Bath Houses. People's Baths. Factory Baths. School Baths. Baths for Military Barracks, Prisons and Jails. Hospital Baths. Baths for Clubhouses, Gymnasiums, Hotels and Bar-



OPERA HOUSE, PITTSBURG.

McClure & Spahr, Architects.

Built of dull glaze cream white terra cotta. Made by Northwestern Terra Cotta Co.

ber Shops. River and Sea Baths. Air and Sun Baths. Medical and Electric-Light Baths. The Water Supply and Plumbing of Bath Houses. Bibliography on Baths and Bathing. Appendix: Bathing in Various Countries. The Dog Bath Alphabetical Index.

SANITATION OF PUBLIC BUILDINGS. By William Paul Gerhard, C.E. 12mo, xi + 262 pages. Cloth, \$1.50. New York: John Wiley & Sons.

This book is intended to discuss some features of sanitation in Public Buildings, with special reference to drainage, water supply, lighting and ventilation. The volume is, in some sense, a continuation of the author's work, "Sanitary Engineering of Buildings," which is devoted largely to the sanitary work of dwelling-houses, apartments and tenement-houses.

MODERN PIGMENTS AND THEIR VEHICLES. Their Properties and Uses considered, mainly from the Practical

Side, and how to make Tints from Them. By Frederick Maire. New York: John Wiley & Sons.

It is not within the scope of this little book to go into the detective business nor to make a specialty of exposing the tricks of trade. Its purpose is to give a brief and concise history of all valuable pigments useful in painting--the main sources of their derivation

and supply; their properties and chief uses; their good qualities and their defects are pointed out, and incidentally there are presented the best methods of detecting adulteration.



ENTRANCE GATE TO ESTATE AT GRAND RAPIDS, MICH

William W. Clarke, Architect

Roofed with combination shingle tile made by Ludowici-Celadon Co.



DETAIL BY ESENWEIN & JOHNSON, ARCHITECTS.

Brick Terra Cotta and Tile Co., Makers.

ACKNOWLEDGMENT.

THE illustrations of the two examples of brick bonding, made in connection with the article treating of Brickwork Details, were furnished by Fiske & Co., New York and Boston.

The photographs from which the illustrations of the Naval Academy Buildings were made, were loaned by the *Scientific American*, New York.

The illustrations of the Chelsea Public Baths were reproduced from the *Architectural Review*, London.

POSITION WANTED by architectural draughtsman with special college training and ten years' office experience in designing and detail work in both the East and the West. Would like position where there is opportunity for advancement. Can furnish the best of references. Address "Indiana," In care of "THE BRICKBUILDER."



THE OLIVER HOTEL, SOUTH BEND, IND.

Shepley, Rutan & Coolidge, Architects.

Built of 110 A light brick made by Hydraulic Press Brick Co.



BRANCH LIBRARY, GRAND RAPIDS, MICH.

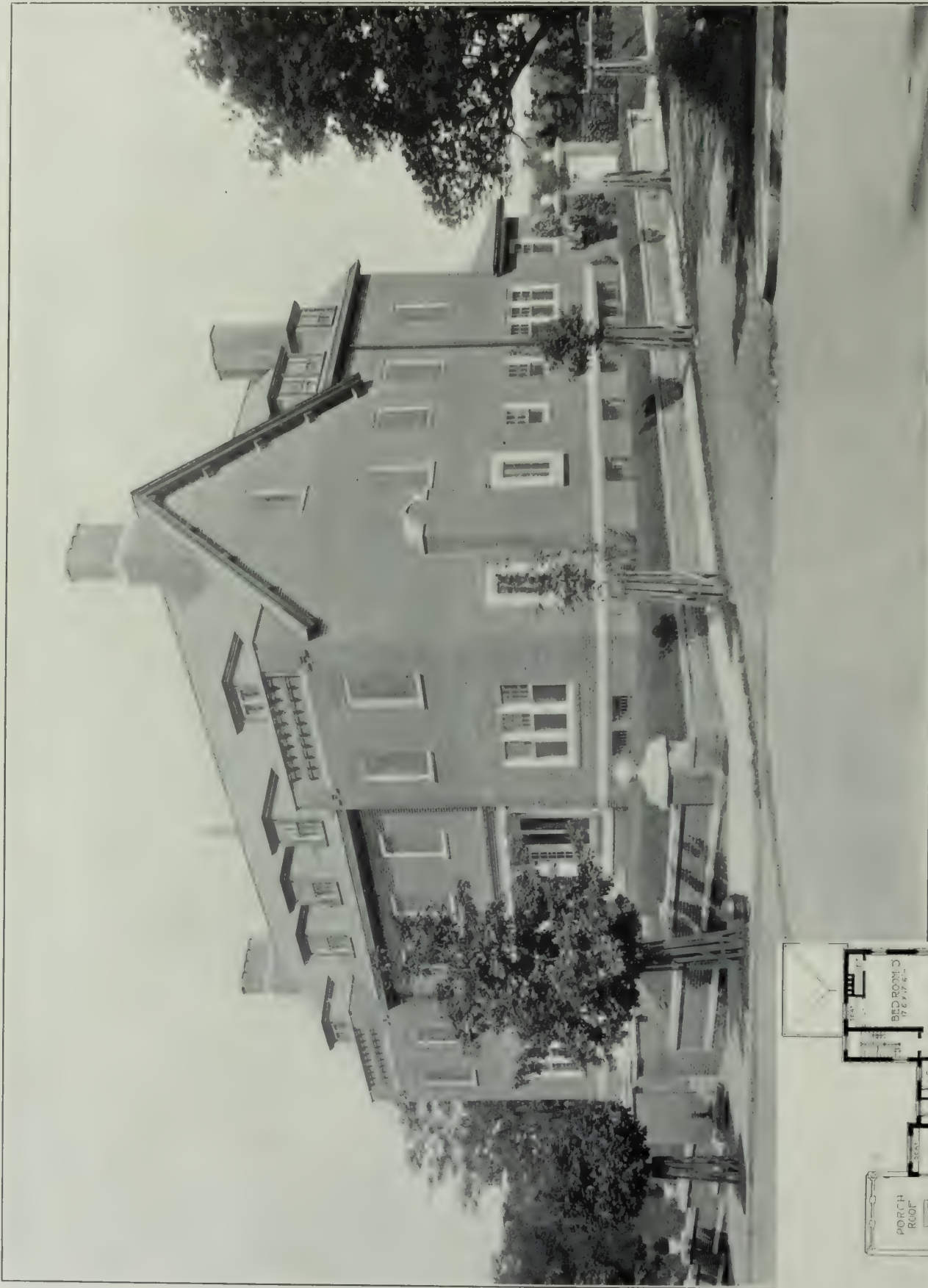
Williamson & Crow, Architects.

Built of "Ironclay" Brick. F. H. McDonald, Agent.



HOUSE AT WOODMERE LONG ISLAND, N. Y.
WILLIAM ADAMS, ARCHITECT.





HOUSE, 2301 S STREET, WASHINGTON, D. C.
FROST & GRANGER, ARCHITECTS.



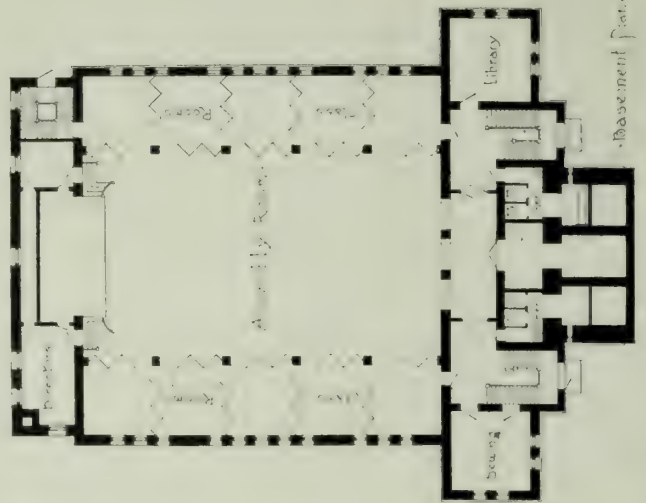
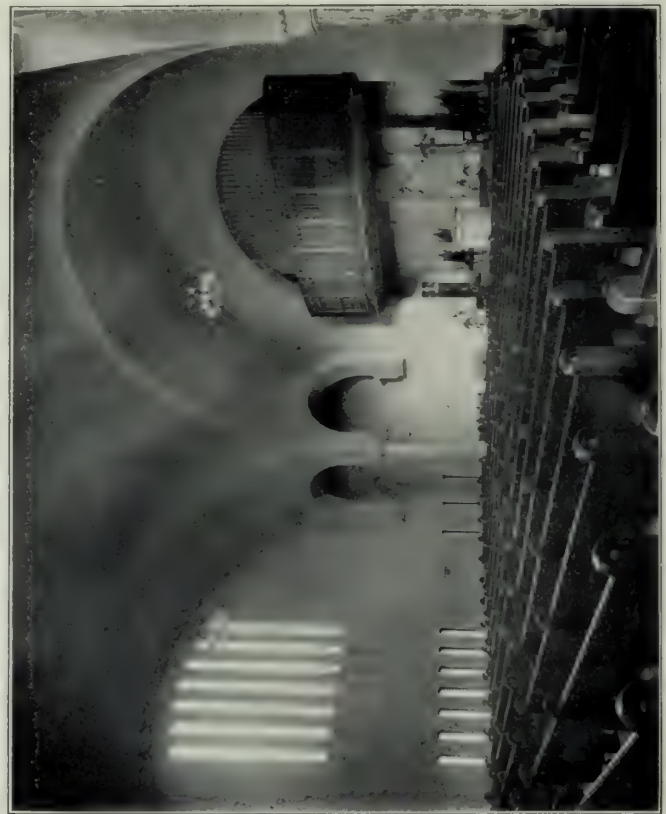
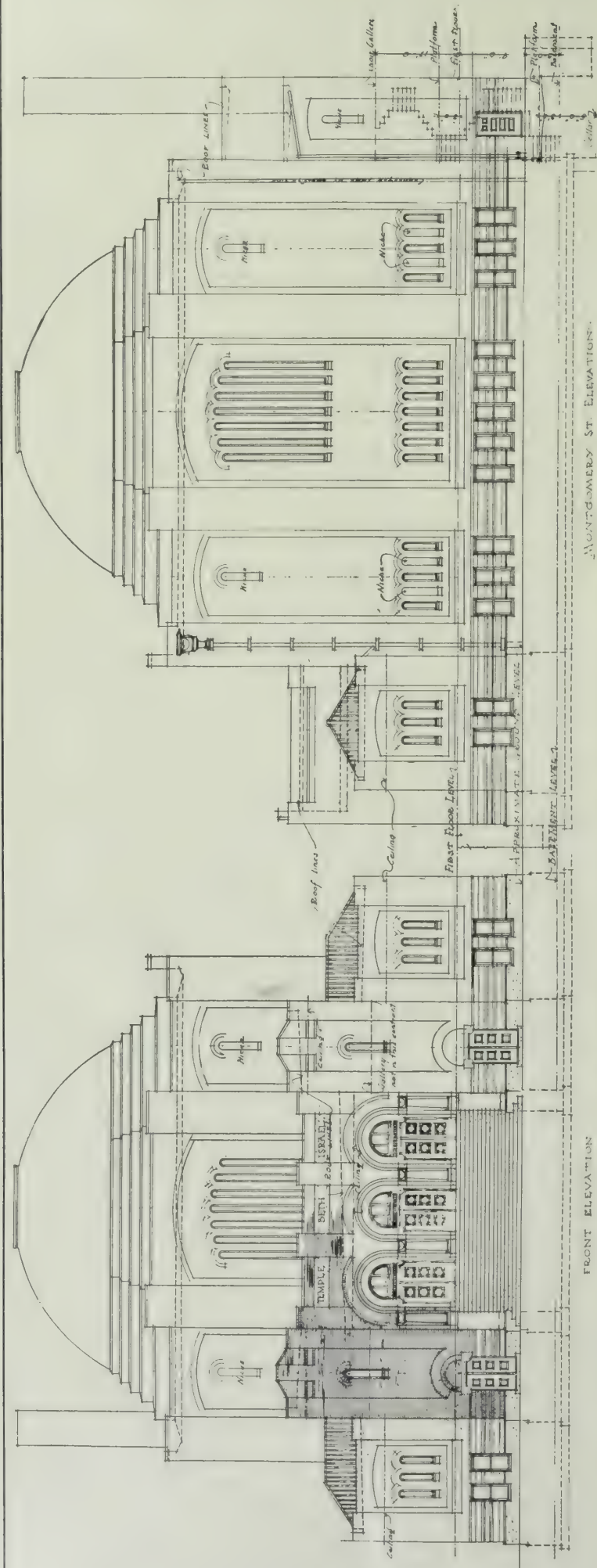


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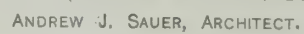


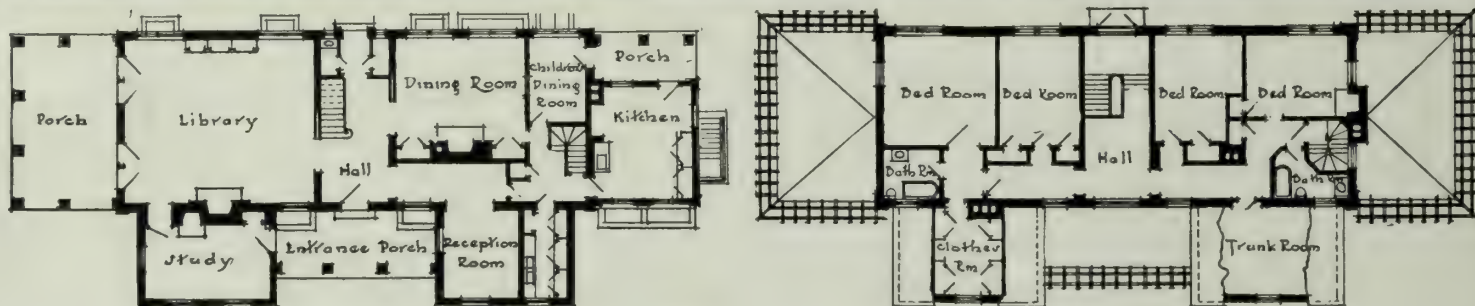
BETH ISRAEL, SYNAGOGUE, PHILADELPHIA.
ANDREW J. SAUER, ARCHITECT.



BETH ISRAEL, SYNAGOGUE, PHILADELPHIA.
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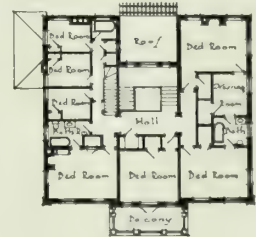


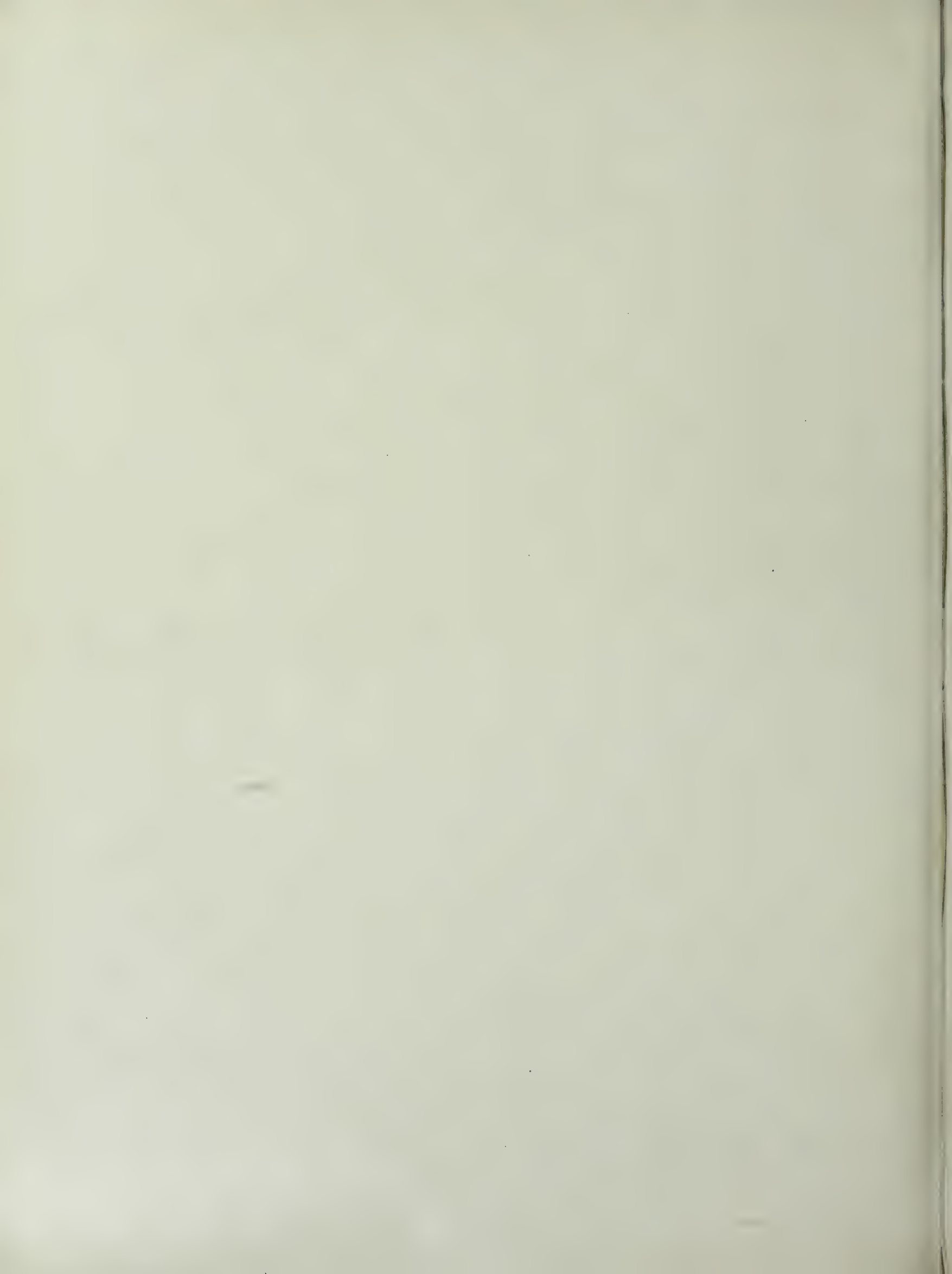


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CHARLES BARTON KEEN, ARCHITECT.



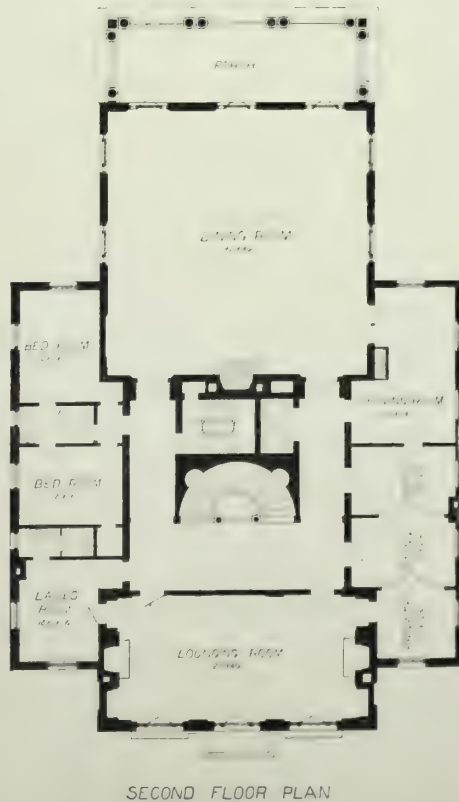
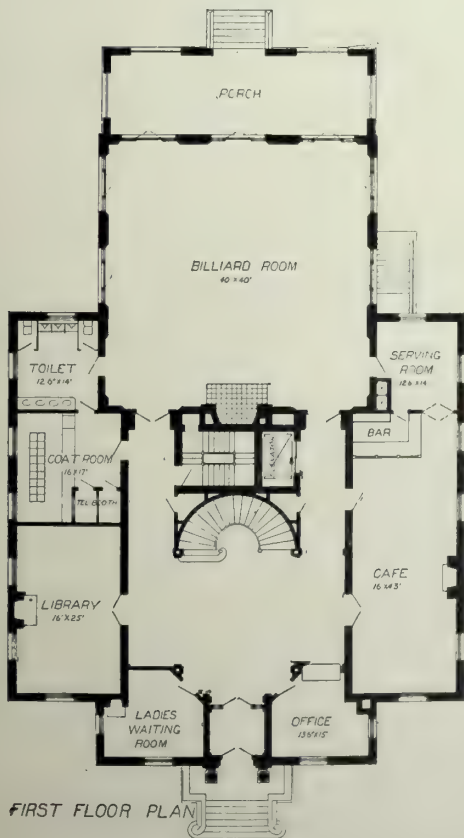
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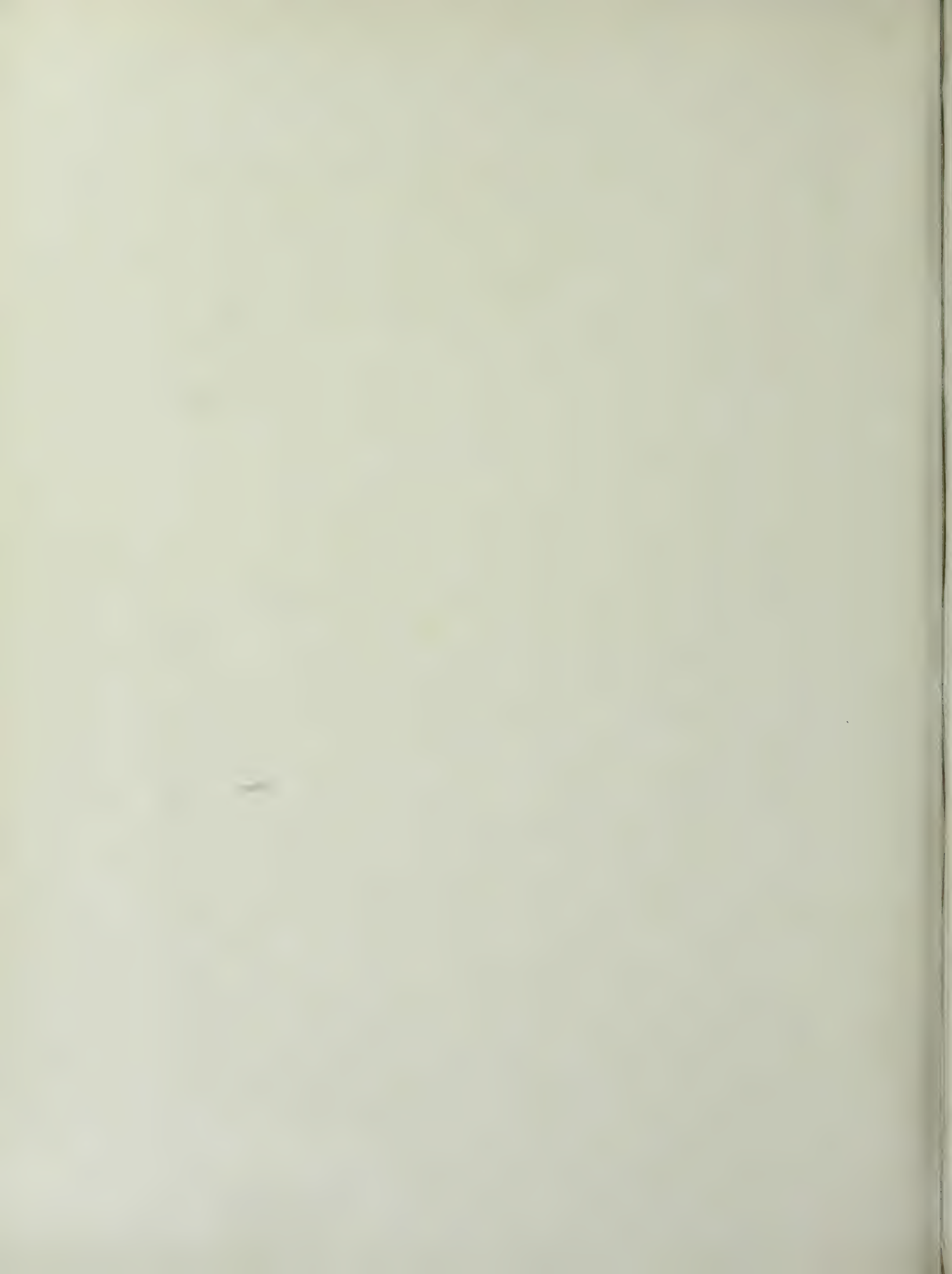


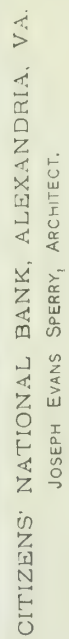


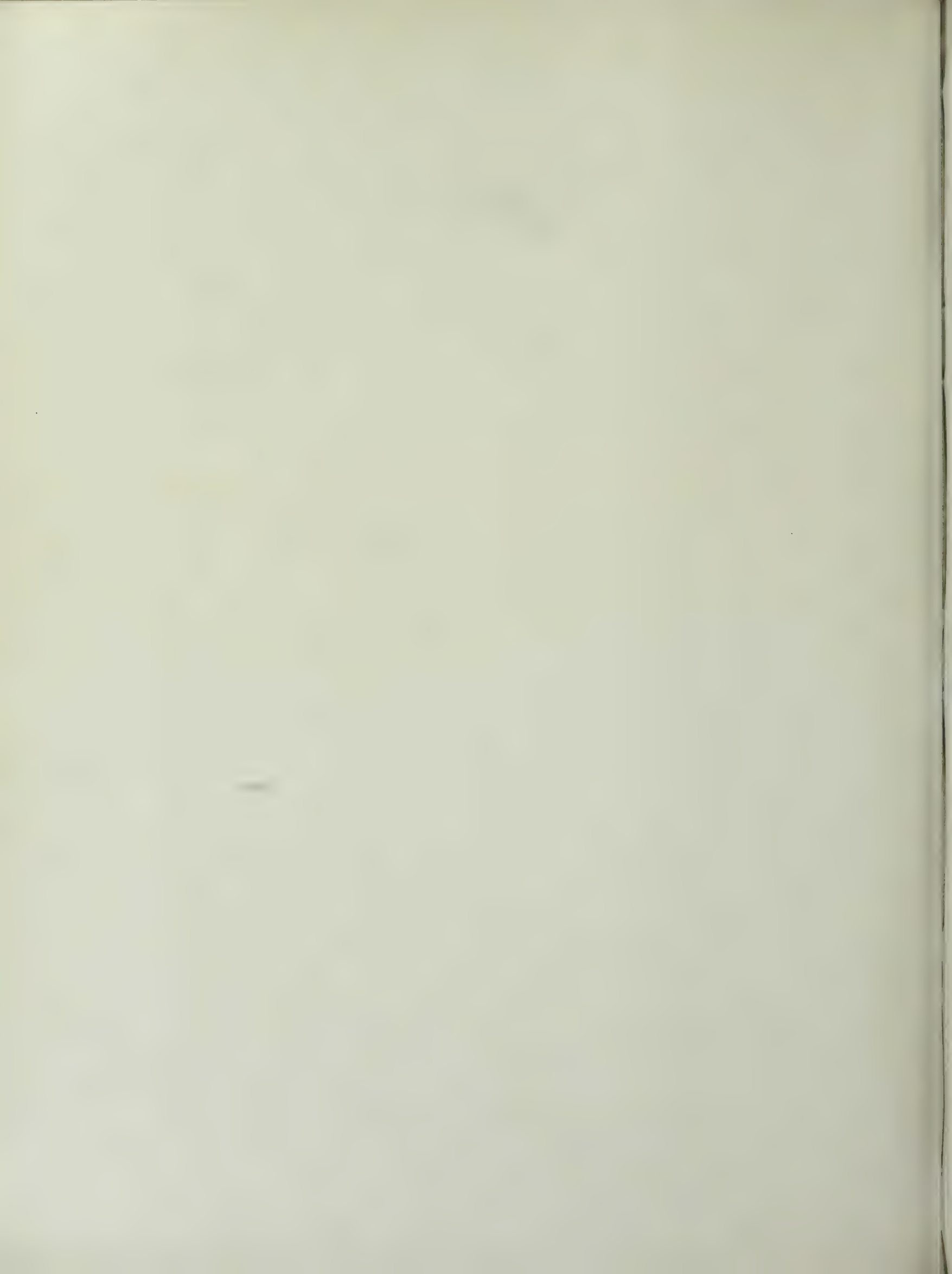


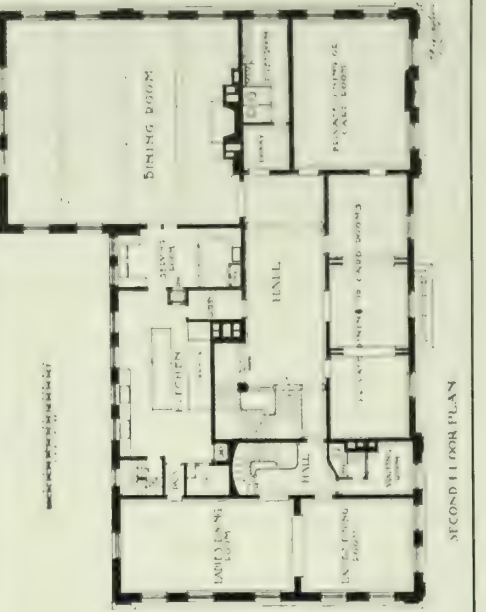
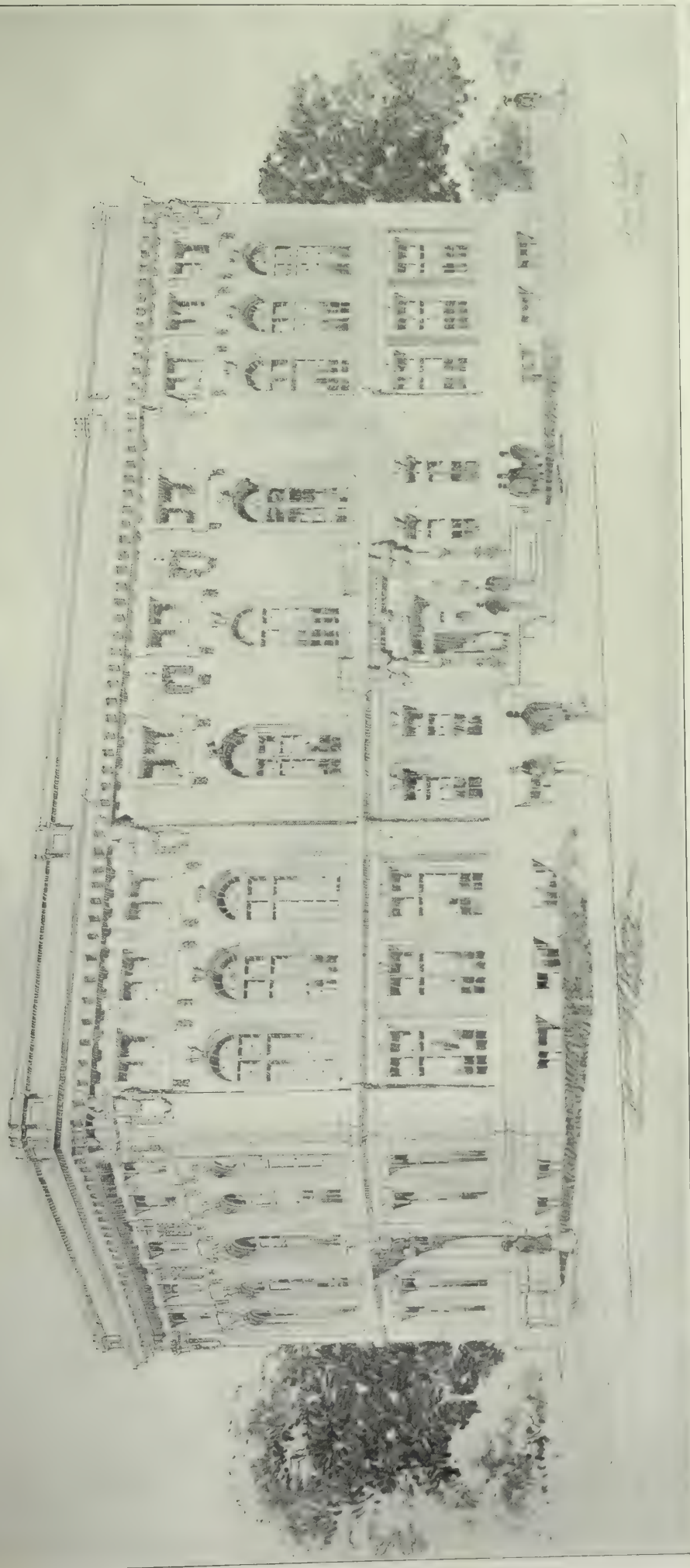
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MACCLURE & SPAHR, ARCHITECTS.



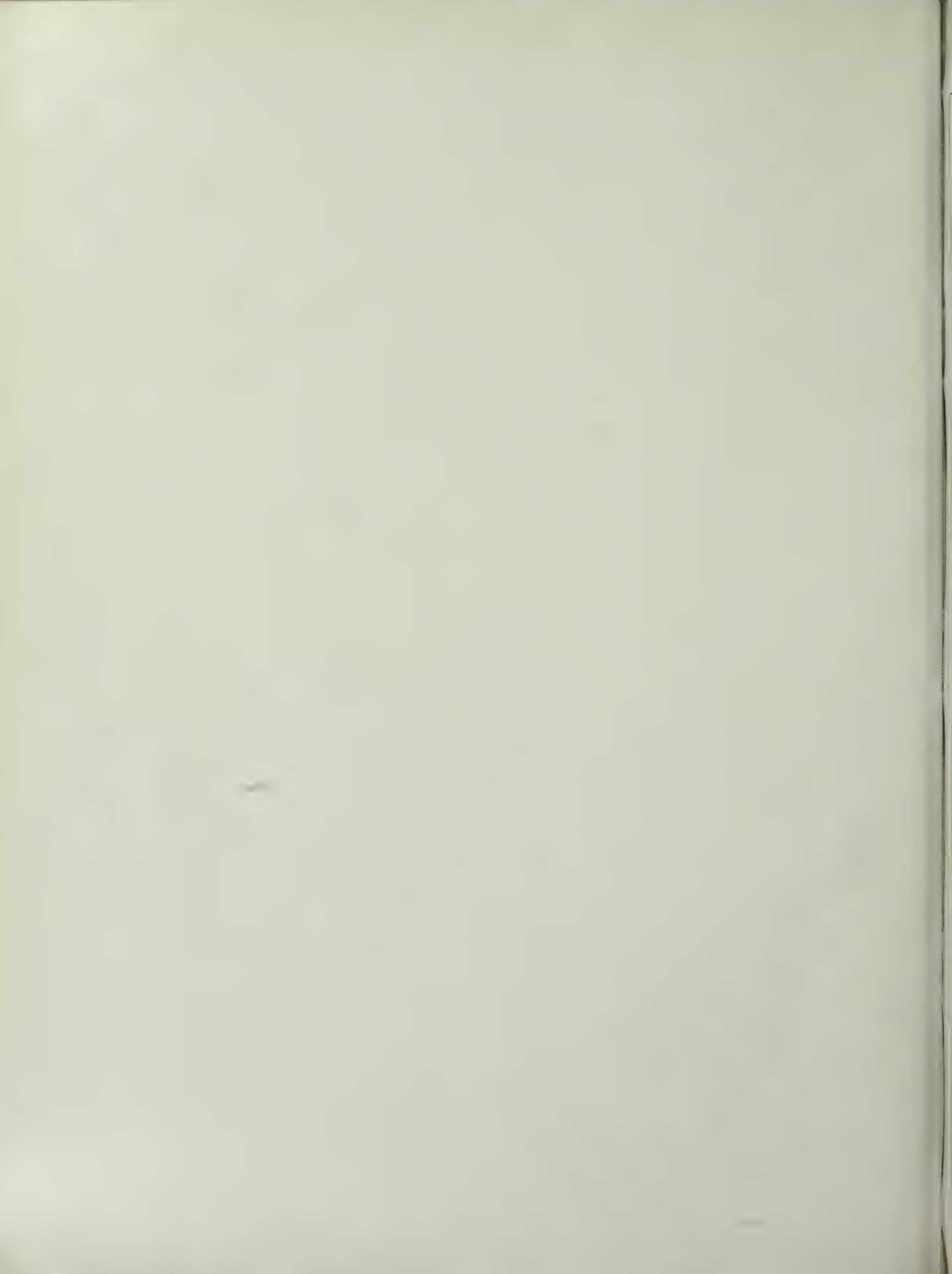


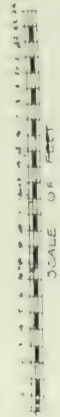
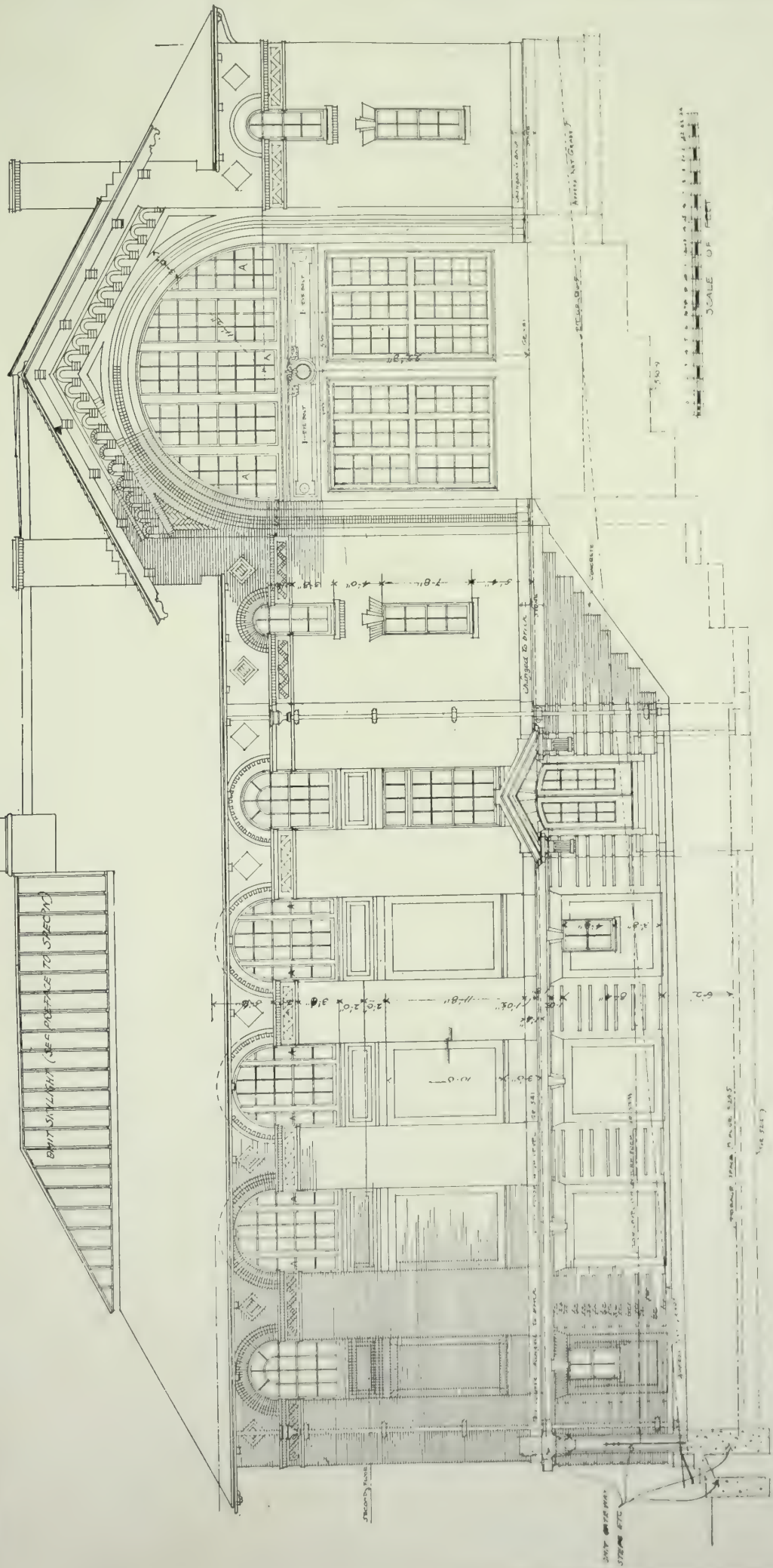
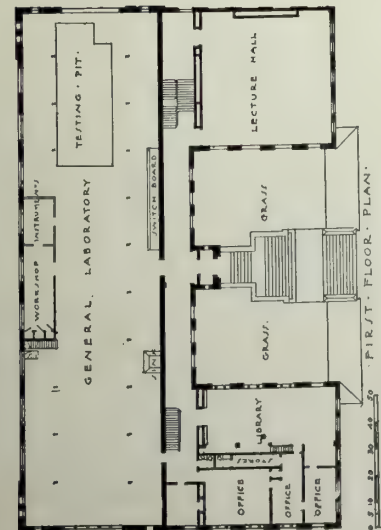
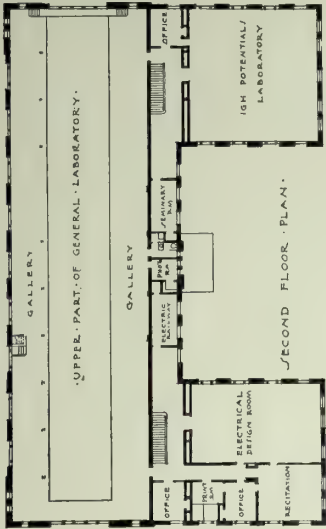




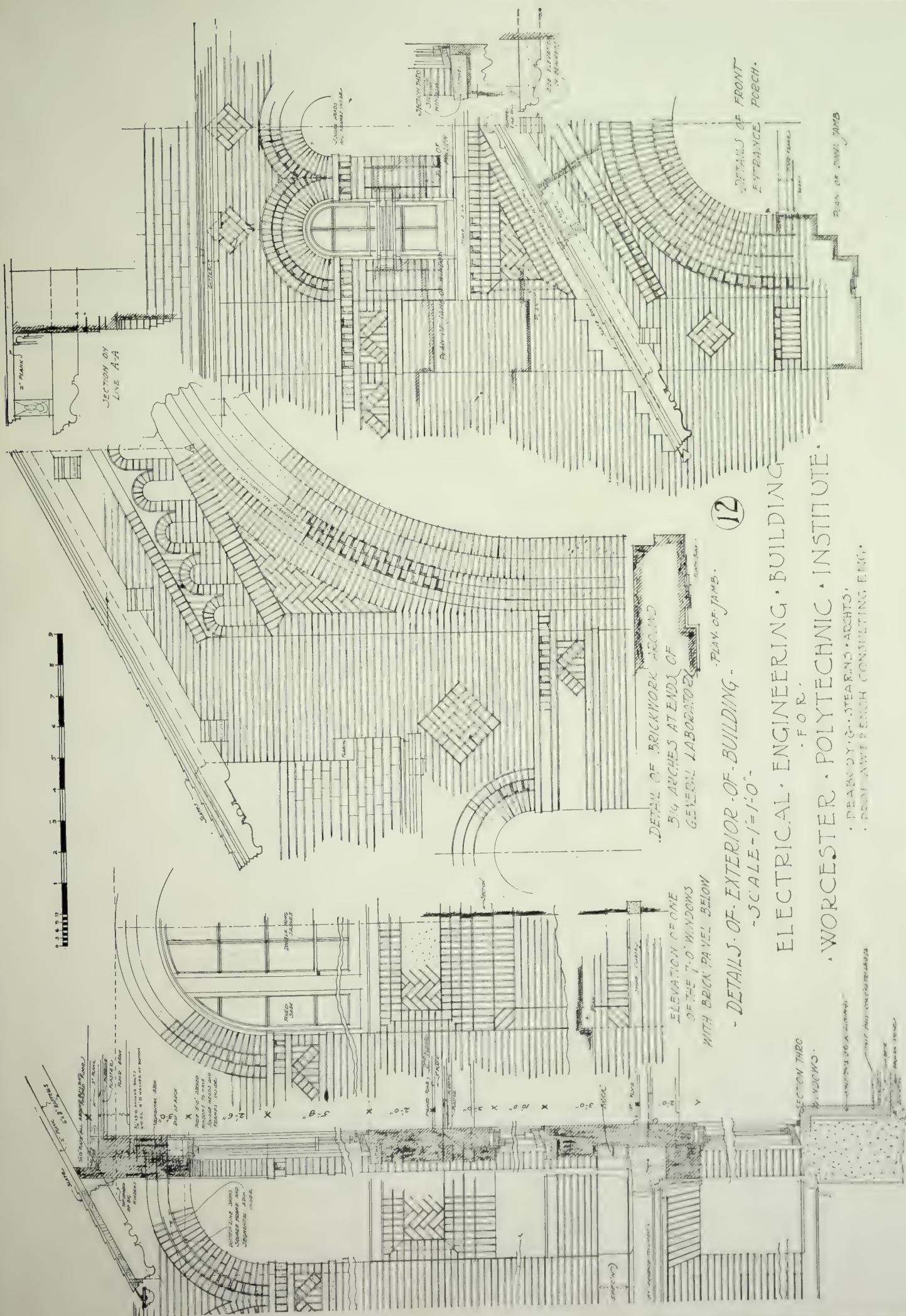


ACCEPTED DESIGN
FOR THE
NOYASSET CLUB
SPRINGFIELD, MASS.
G. WOOD TAYLOR,
ARCHITECT.





DETAIL OF SIDE ELEVATION, ELECTRICAL ENGINEERING BUILDING, POLYTECHNIC INSTITUTE, WORCESTER, MASS.
PEABODY & STEARNS, ARCHITECTS.



12

DETAILS OF EXTERIOR OF BUILDING -

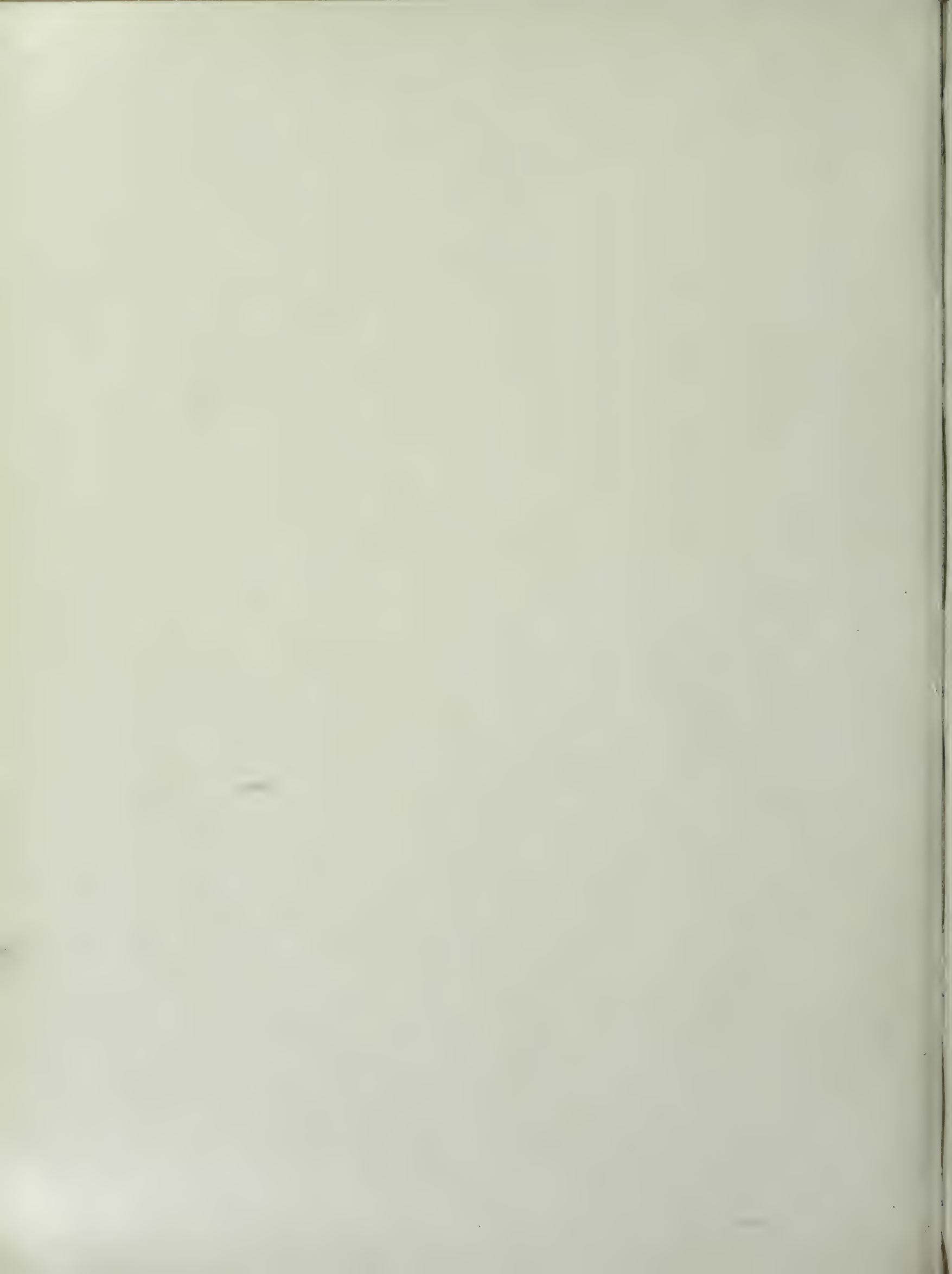
SCALE - 1" = 1'-0"

ELECTRICAL ENGINEERING BUILDING

FOR WORCESTER POLYTECHNIC INSTITUTE

PEABODY STEARNS ARCHTS

PROF LAWRENCE CONSULTING ENG





ELECTRICAL ENGINEERING BUILDING, POLYTECHNIC INSTITUTE, WORCESTER, MASS.
PEABODY & STEARNS, ARCHITECTS.

The Theater Building
Competition

SPECIAL NUMBER

OF

THE BRICKBUILDER

EXTRA EDITION

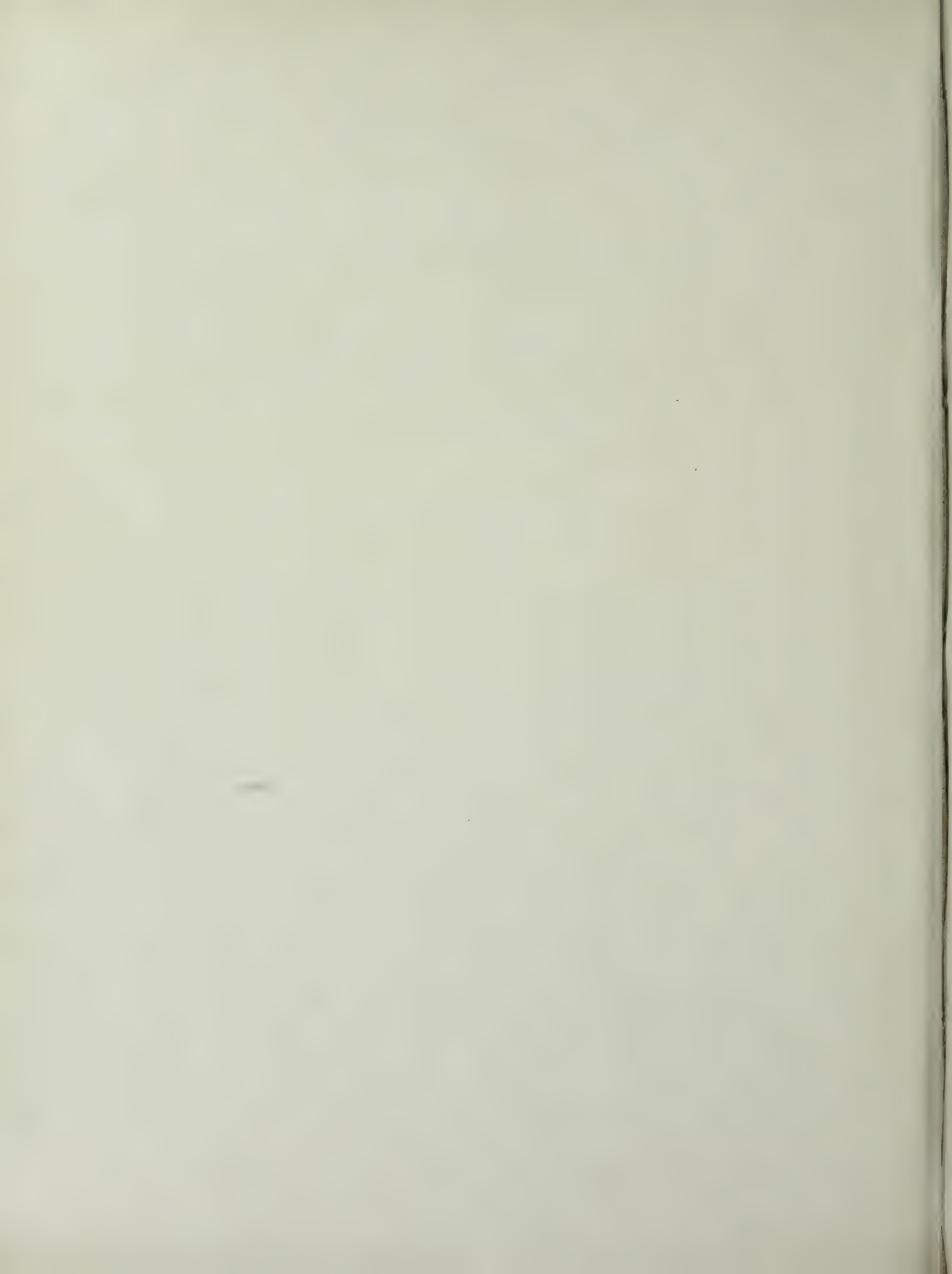
TO

VOLUME XVII, NO. 2.

ROGERS & MANSON

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THE BRICKBUILDER

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Competition for a Theater Building

FIRST PRIZE, \$500

SECOND PRIZE, \$200

THIRD PRIZE, \$100

PROGRAM

THE problem is a Theater Building. The location may be assumed in any city or large town of the United States. The site is at the corner of two streets of equal importance. The lot is perfectly level, has a frontage on one street of 100 feet and a depth on the other street of 150 feet to a 15-foot alley at the rear.

The following is offered by way of suggestion:

Depth of stage, 35 feet to curtain line. Projection of stage beyond curtain line, 3 feet. Proscenium opening not less than 36 feet wide, and not over 40 feet high. Width may be increased and height may be decreased to suit design. Auditorium to seat about 1,200 and to have but one balcony.

The sight lines should be so laid out in plan that every seat shall command an unobstructed view of at least three fourths of the depth of the stage, measured on a center line. The lines of the balcony should be sufficiently raised so that each seat on the floor shall have an unobstructed view to a height of 20 feet on the curtain line.

On the first floor, in addition to the auditorium, provision should be made for the foyer, lobby, ladies' retiring suite, coat room, ticket office and manager's office opening therefrom, and such other features as may seem desirable to the designer.

On the balcony floor there should be a foyer, which may be treated in a monumental manner if desired, also lavatories for men and women, and such other features as may seem desirable to the designer.

It is assumed that a smoking-room and lavatories will be provided in the basement, but plan of this need not be shown. Details of stage arrangement and dressing-rooms may also be omitted.

There should be separate exits and stairways at least 5 feet wide on each side of the balcony, which exits may lead into the foyer of the first story.

There must be an exterior balcony of terra cotta, or loggia, with access thereto from the balcony level. This should be treated as a feature of the design, and may be carried all around the building if desired.

It is not the intention that the design should be out of reason with the commercial requirements of an ordinary theater. The portion devoted to the stage should be carried up to a height of not less than 80 feet above the street; otherwise the height need be governed only by sight lines and by questions of design. It is not necessary to consider daylight illumination for the interior, and openings in the outside wall need be considered only as means of egress.

The exterior of the building and the lobby are to be designed entirely in Architectural Terra Cotta, employing colored terra cotta in at least portions of the walls. The color scheme is to be indicated either by a key or a series of notes printed on the same sheet with front elevation and plans at a size which will permit of two thirds reduction.

The following points will be considered in judging the designs:

- Frank and logical expression of the prescribed material.
- Rational and logical treatment of the exterior.
- Excellence of plan.

In awarding the prizes the intelligence shown in the constructive use of terra cotta and the development or modification of style, by reason of the material, will be taken largely into consideration.

There is no limitation of cost, but the designs must be suitable for the character of the building and for the material in which it is to be executed.

The details should indicate in a general manner the jointing of the terra cotta and the sizes of the blocks.

DRAWINGS REQUIRED

On one sheet at the top, the shorter elevation, drawn at a scale of 8 feet to the inch. At the bottom, the first and balcony floor plans drawn at a scale of 16 feet to the inch, and the color key or notes between the elevation and plans.

On a second sheet at the top, the longitudinal section, drawn at a scale of 16 feet to the inch; immediately below, the longer elevation, drawn at a scale of 16 feet to the inch, and below that half-inch scale details of the most interesting features of the design.

The size of the sheet (there are to be but two) shall be exactly 22 inches by 30 inches. Strong border lines are to be drawn on both sheets, one inch from edges, giving a space inside the border lines 20 inches by 28 inches. The sheets are not to be mounted.

All drawings are to be in black ink without wash or color, except that the walls on the plans and in the sections may be blacked-in or cross-hatched.

Graphic scales to be on all drawings.

Every set of drawings is to be signed by a *nom de plume* or device, and accompanying same is to be a sealed envelope with the *nom de plume* on the exterior and containing the true name and address of the contestant.

The designs will be judged by three well-known members of the architectural profession.

For the design placed first in this competition there will be given a prize of \$500.

For the design placed second a prize of \$200.

For the design placed third a prize of \$100.

REPORT

OF THE

JURY OF AWARD

THE Jury of Award recognizes the immense amount of work which has been expended by the contestants in this competition. Out of the two hundred or more designs submitted there was not a single one which did not show careful thought and endeavor to solve the problem primarily as a theater and give it an individual character. The jury also cannot refrain from commenting upon the excellence of the draughtsmanship. Good drawing of itself does not count for a great deal in the decision of a competition of this sort, and yet it certainly has a value in an educational way, and the yearly progress which has been made in these competitions shows how fast the average of excellence is advancing among our draughtsmen.

But with the great amount of thought expended upon the problem itself and the excellent draughtsmanship displayed, it is a matter of regret to the jury that so few of the designs show a definite solution of the problem as a theater, and that in so many instances when the frank and logical expression of prescribed material was indicated it was not accompanied by an equal excellence in plan. And in further accordance with the distinct conditions of the program, in awarding the prizes the jury tried to consider first the intelligence shown in the constructive use of terra cotta and the development or modification of style by reason of material.

Terra cotta, permitting as it does of a light, delicate and highly decorative treatment, should be an especially suitable material for a theater. With it a texture can be given to a wall surface which might not be equally admissible in a building of a different character, and a playfulness in the treatment of detail would be permissible in the material and applicable for a theater to an extent which would hardly be possible with any other one problem. On the other hand, it is not easy to determine just what constitutes fitness in design for terra cotta details, but the jury feels that the three premiated designs have each in slightly different ways managed to present their detail sheets so as to show a character of detail that certainly suggests the use of terra cotta rather than any other one material. The same is true to a lesser extent of several of the designs which are mentioned, but the tendency to slip into stone work is manifest to quite a marked degree in nearly all the designs.

As to plan, the jury feels that the competition is somewhat disappointing. It was hoped that some

novel and interesting solution of the problem might be offered, that there might be something set forth which would be of value to the architect in a suggestive way at least, and that with all the bright young men working on this problem there would be sure to be some distinctly novel proposition. But the jury regrets to find that almost no departure has been made from the orthodox conventional type and that none of the plans of themselves are such as would be likely to find their way into the utility heap of an architect's library.

FIRST PRIZE. This was placed first for its general excellence, for the essentially terra cotta effect of the design both in mass and as detail, and for the perfectly logical treatment of the exterior. This design could be taken for nothing but a theater, and it could be worked out successfully in nothing but terra cotta. The plan has utilized the possibilities of a foyer on the balcony level as suggested by the program, but it has made nothing of the exterior treatment on the side, which is rather to be regretted.

We are inclined to question a little whether the Florentine Renaissance is after all the most adaptable style in detail for American terra cotta architecture, but accepting that as a *parti* it has certainly been very cleverly and successfully worked out on the detail sheet. In plan, the circular promenade around the orchestra is a feature which is always acceptable, but the absence of side aisles is not a good arrangement. The location of the ladies' room and its adjoining toilets is quite inadvisable, being without any exterior light or air, and there is no good reason why it should not have been on the side street instead of being put way inside. Also, the manager's office is treated as if it were to be used in part for the sale of tickets, whereas the ticket selling department is always by itself in a much smaller room. It is on the whole, however, a good, workable theater, which might easily be developed into a well appointed house, and the jury feels that on all three considerations this is fitly placed first, and it is especially commended for the beautiful manner in which it is worked out. It is one of the few designs submitted in which the treatment of terra cotta is logically carried throughout the interior.

SECOND PRIZE. The excellence of the composition and the simplicity of plan is specially to be commended in this design. Also the sense of scale

is very carefully preserved and the side elevation is given an admirable treatment, though it needs further elaboration to be quite successful. The terra cotta character of the exterior is well preserved in the elevation drawings but is not worked out so successfully in the detail. The plan is lacking in coat rooms, and the introduction of triple independent vestibules would necessitate separate ticket offices and prove an undesirable feature. The treatment of the stairs is very compact and logical. The introduction of the cross aisle near the stage end of the auditorium is not a desirable feature as it cuts the house in two and there seems no good reason why it should be done at all. The proscenium boxes are not in good proportion to the house and the plan and the section do not seem to quite agree.

THIRD PRIZE. In this design the general effect of the outside shows unmistakably as terra cotta but not as unmistakably as a theater. The details are the most exquisite that were submitted and the draughtsmanship makes one appreciate how astonishingly the country has advanced of recent years. There seems to have been absolutely no restraint on the facility of the pen which elaborated the sheet of details, and the work as shown has the advantage of not only looking like terra cotta, but of being as well beautiful in itself. It is to be regretted from an artistic standpoint that the same skill was not expended on the sight lines of the section and the treatment of the main ceiling as was given to the extremely clever indication of the foyers and stairs. In plan every condition seems to have been on the whole very well met, with the possible exception of ladies' lavatories. The treatment of second story foyers is admirable, and this design is one of the few submitted which took advantage of the possibilities of loggias on the side. These are very well treated and the exits from the house in balcony and gallery are in every sense admirable and ample. The boxes of the proscenium are quite ignored, but there is no doubt of the author's ability to work this out as successfully as he has the front of the house.

FIRST MENTION. The jury especially commends this design as an artistic stunt. It is exceedingly clever and well worked out, adapting to an exterior the suggestion of a proscenium motive and elaborating the detail in a wonderfully clever manner, but it was felt that this was essentially an exposition design rather than that for a permanent theater building. Furthermore, the enormous canopy suspended over the sidewalk from the top of the arch motif is indicated at a height so extreme as to be of no practical value, and is an unfortunate conception. In plan, boxes are introduced which were not asked for and in the second floor the purpose is not apparent for the long apartments at each

end communicating apparently with nothing of any particular interest. The draughtsmanship is very praiseworthy in this design.

SECOND MENTION. A well composed exterior, with good detail in many respects, and one of the few designs which took into account the inevitable electric sign which must be a feature of every theater. The boxes are poorly arranged, the stairs to balcony are unnecessarily twisted, and the introduction of the central skylight is uncalled for and a feature which had far better be eliminated entirely.

THIRD MENTION. An exceedingly clever scheme, introducing the decorative frieze of figure work most interestingly, but as a whole it lacks in charm and is unfortunate in mass. The purpose of the niches and figures in front of the foyer is not by any means apparent and the foyer is one of the few rooms about a theater which can appropriately be treated with large exterior windows, instead of which we have here a perfectly blank wall. In this design also the interior skylight is a practical mistake.

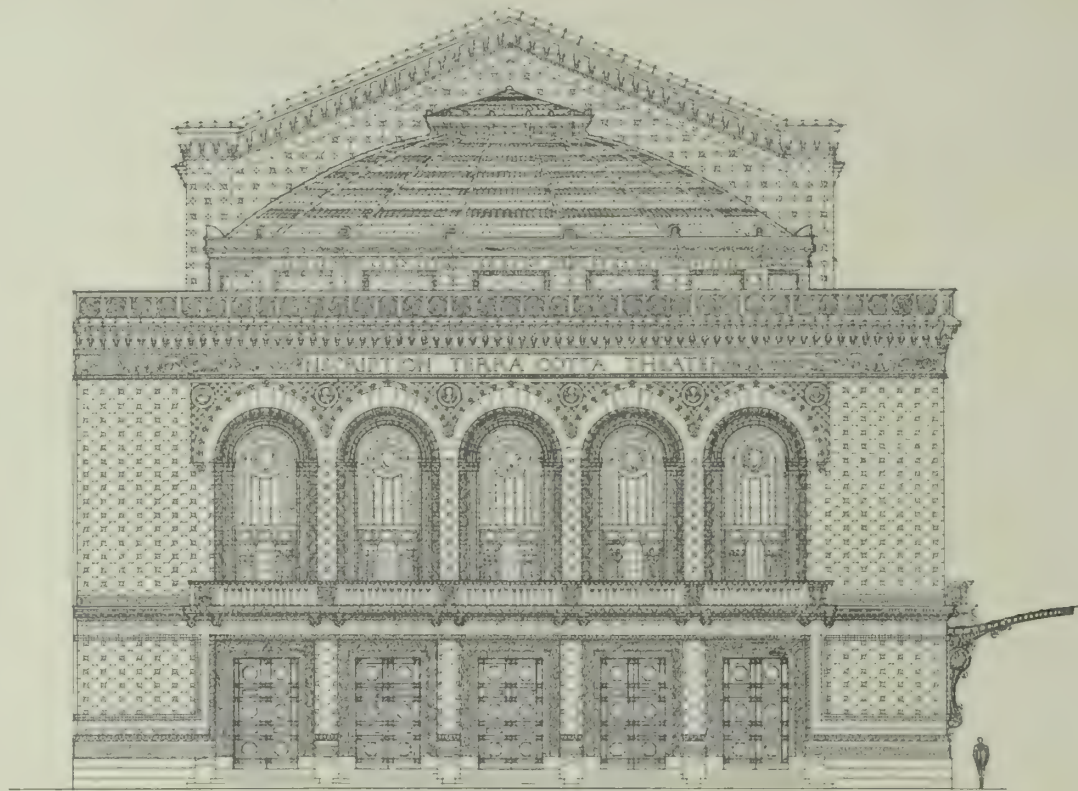
FOURTH MENTION. The work of a man with ideas. A design thoroughly well presented and worked up, with exquisite draughtsmanship, and with the introduction into the plan of many of the academic tricks which enhance its points so effectively and bring out the treatment of axis and balance of parts in a perfectly legitimate manner. It is not, however, characteristically terra cotta, either in detail or mass, and the mass of the front portion of the building is unnecessarily low and not pleasing in general outline. This scheme has, however, one merit in that it accepts the fact that the building is placed at the corner of two streets of equal importance and the side elevation is accordingly given a degree of study which is not found in any of the other designs.

FIFTH MENTION. This deserves to be commended for the attempt to depart from the conventional treatment of the proscenium above the roof. It is a question how successful this would be, but it certainly is not hackneyed. The façade is well proportioned and the details clean and well worked out.

SIXTH MENTION. This design is essentially terra cotta in its appearance but the scale is not well balanced and the introduction of the depressed marquise at the entrance introduces an unfortunate low scale at the entrances. The arrangement in plan of the ticket office lobby is not practical, nor are the stairs well arranged for the accommodation of the public.

Jury of Award { JOHN M. CARRÈRE
CLARENCE H. BLACKALL
WILLIAM ADAMS DELANO
FRANCKE H. BOSWORTH, JR.

After the Prize and Mention Designs the others are not arranged in order of merit.



FRONT ELEVATION

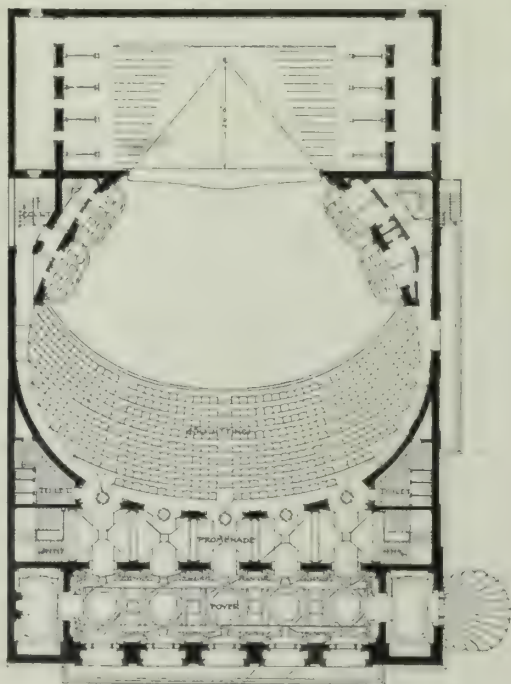
BRICKBUILDER COMPETITION A THEATER BUILDING



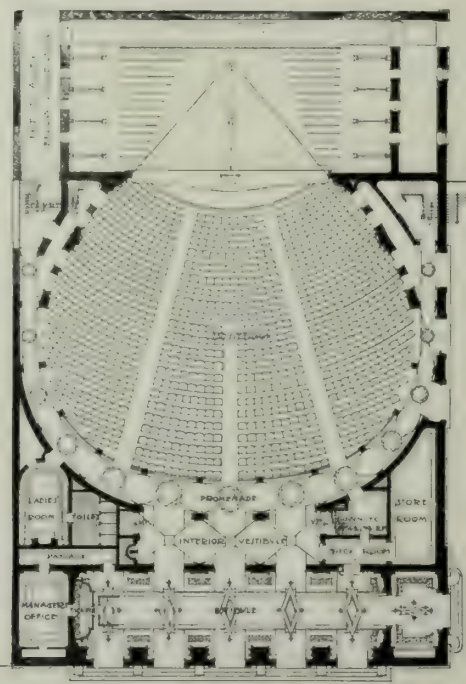
0 5 10 15 20

COLOR SCHEME

- BLUE
- OLIVE GREEN
- LIGHT TAN
- LIGHT BUFF
- EMERALD GREEN
- BRICK RED



BALCONY FLOOR PLAN

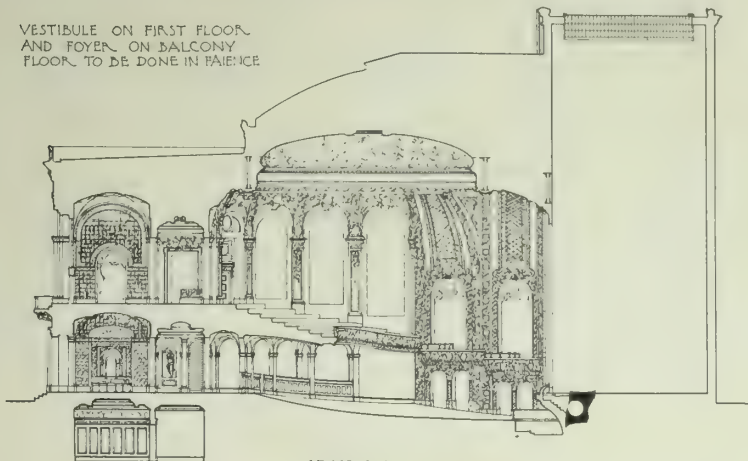


FIRST FLOOR PLAN

FIRST PRIZE DESIGN.

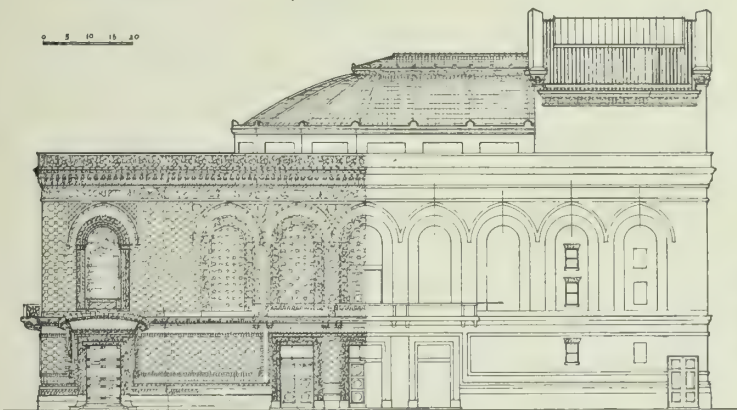
SUBMITTED BY RUSSELL EASON HART, NEW YORK.

VESTIBULE ON FIRST FLOOR
AND FOYER ON BALCONY
FLOOR TO BE DONE IN FAIENCE



SECTION

0 5 10 15



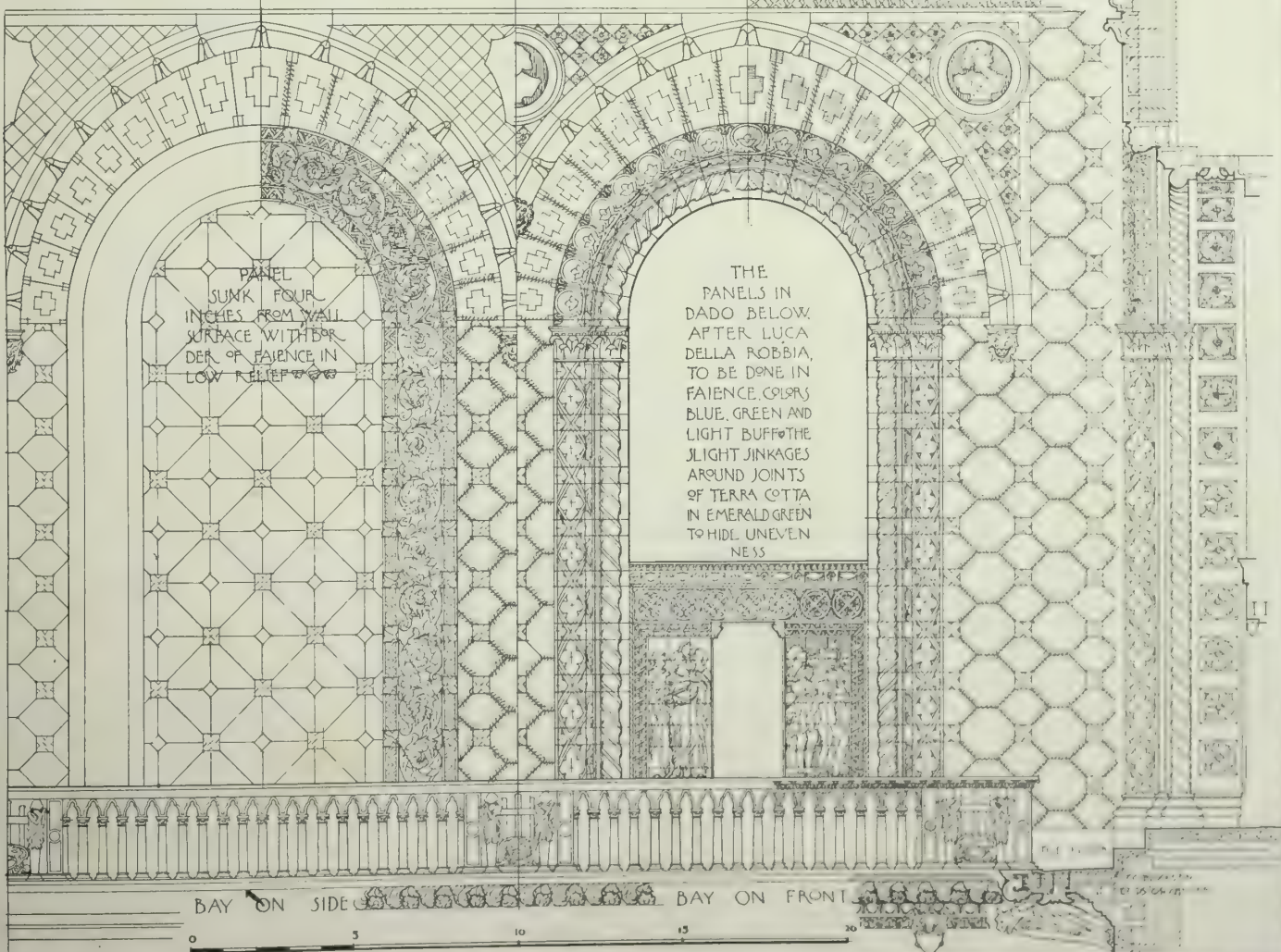
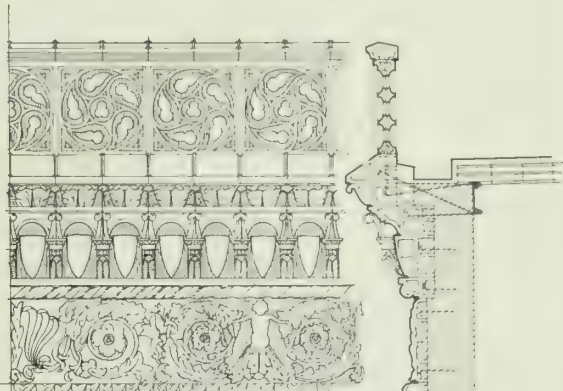
SIDE ELEVATION

BRICKBUILDER - COM
PETITION A THEATER
BUILDING
TO BE BUILT ON A CORNER
LOT ONE HUNDRED BY ONE
HUNDRED AND FIFTY FEET



COLOR SCHEME

- BLUE
- OLIVE GREEN
- LIGHT TAN
- LIGHT BUFF
- EMERALD GREEN
- BRICK RED



BAY ON SIDE

BAY ON FRONT

0

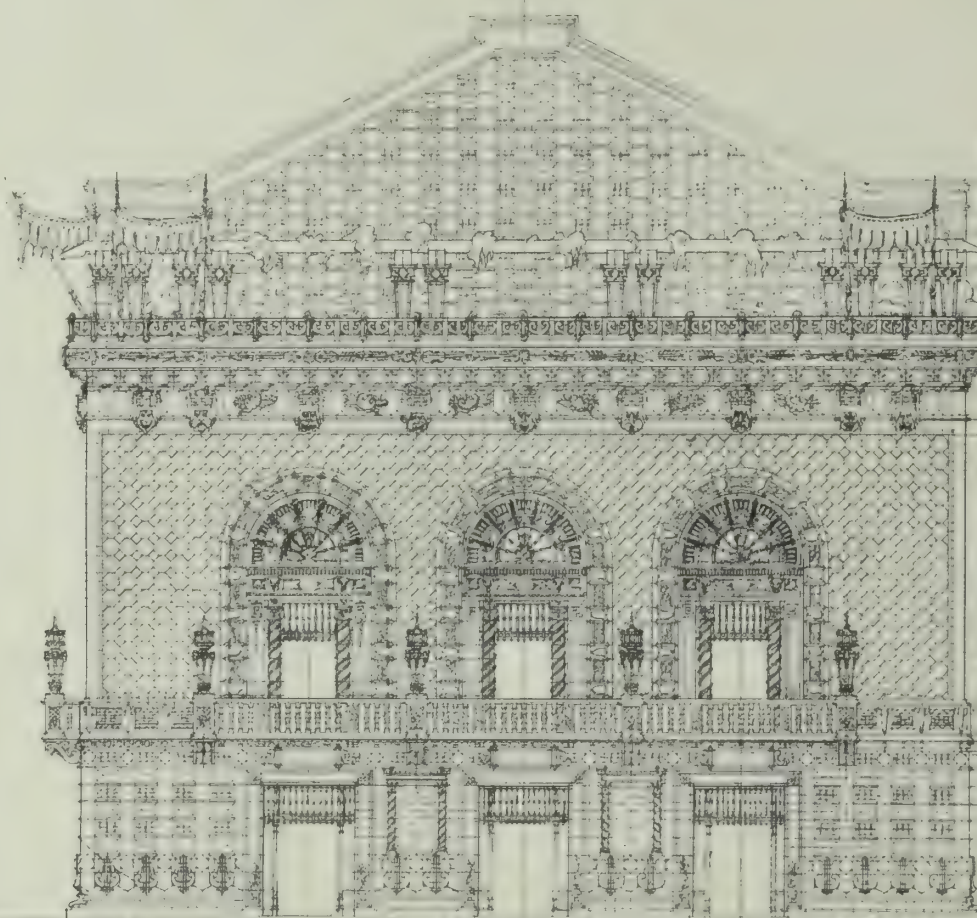
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10

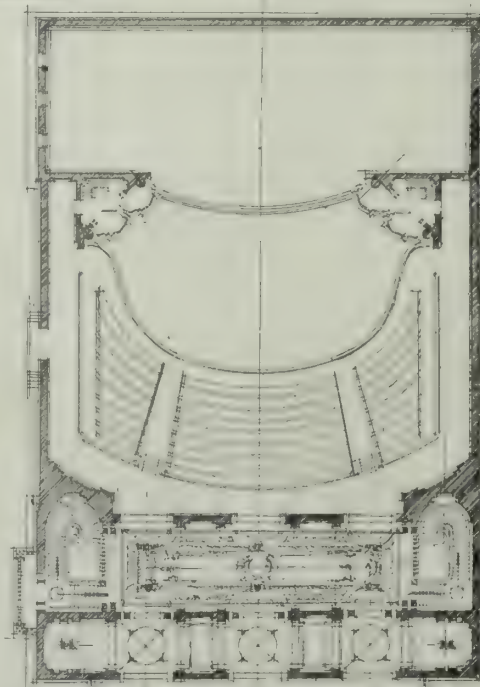
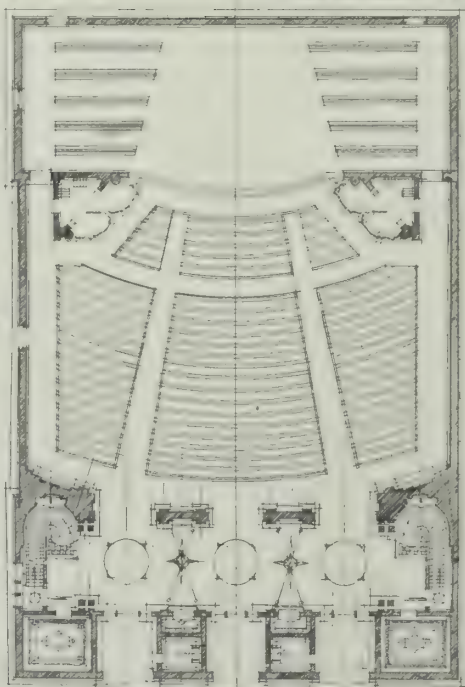
15

20

DETAILS BY RUSSELL EASON HART.

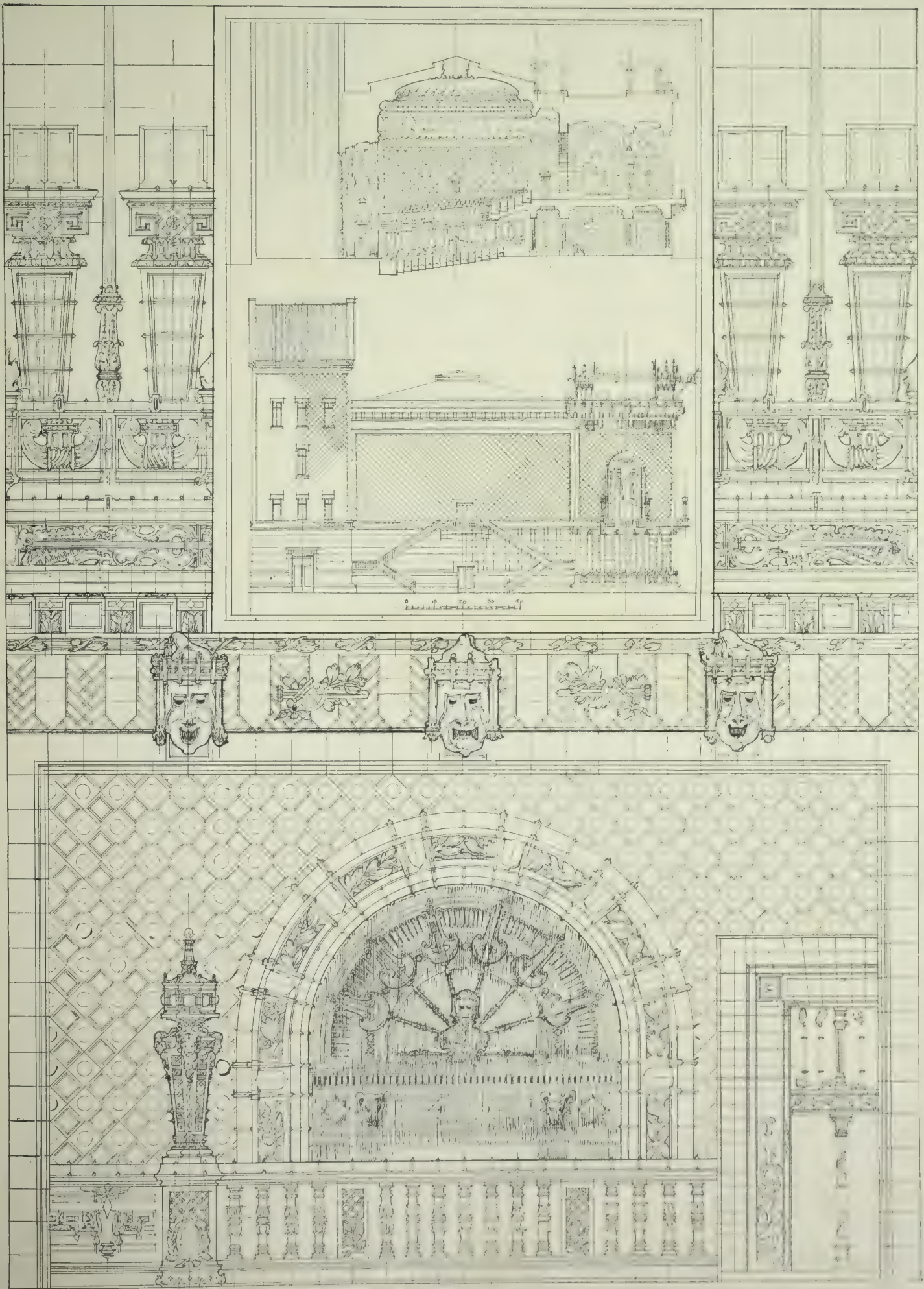


COLOR-Scheme - THE ROOF OF THE BUILDING IS GREEN -
 CLAYED - LIGHT BROWN AND - CREAM - TERRA - COTTA - BLUE -
 BROWN - LIGHT - GREEN - CREAM - AND - WHITE - COLORS ARE TO -
 BE - EMPLOYED - IN - CORNICE - SCANTLING - RAIL - LOGGIA -
 BALCONY - LAMEN - AND - LOWER - PARTS - OF - BASE - COURSE -
 THE - LOGGIA - IS - TO - BE - WHOLLY - COLORED -

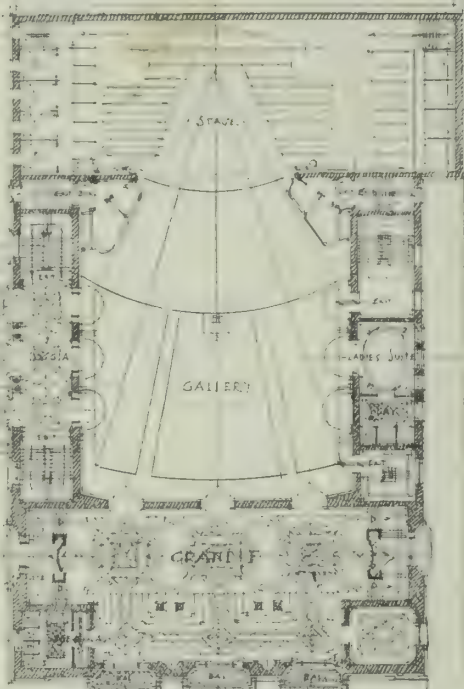


SECOND PRIZE DESIGN.

SUBMITTED BY CHARLES ROMER AND FREDRICK J. FEIRER, NEW YORK.



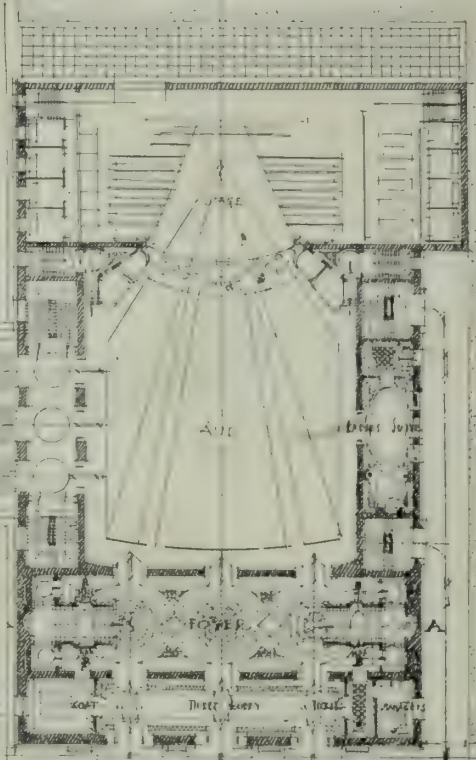
DETAILS BY CHARLES ROMER AND FREDRICK J. FEIRER.



DOORS MARKED A & B ARE
DISTANCES UNDER STAIRS
LEADING

NOTE

HALF INCH SCALE EXTERIOR DETAILS
ONE INCH SCALE INTERIOR DETAILS



10 20 30 40

FOYER FLOOR

GROUND FLOOR

THE EXTERIOR OF THE BUILDING TO BE OF ENAMELED TERRAZZO IN A COLOR SCHEME OF BLUE AND GOLD. THE GENERAL TONE TO BE AN IVORY TINT. THE HORIZONTAL BANDS AND THE FLOU-DE-IVY MOTIF FORMING DIAPER TO BE MODELLED IN LIGHT RELIEF ON A BACKGROUND OF LIGHT YELLOW.

ORNAMENTATION ON WINDOW ARCHITRAVES TO BE IN THE GENERAL IVORY TINT GRADING INTO LIGHT GREEN ON A BACKGROUND OF GOLDEN YELLOW. THE CIRCULAR MOTIF TO BE IN DEEPER BLUE. THE TWO FLAUTES TO BE LIGHT YELLOW IN THE PANELS, AND LIGHT YELLOW TO BACK UP THE FINANCIAL IN THE FIELD AT TOP. THE FIELDS IN THE CORNICE TO BE GOLDEN YELLOW ON DEEPER BLUE. DANTELS, AND THE PANELS IN THE FIELD OF THE MEDALLIONS TO BE BLUE. THE ORNAMENTATION ON THE CYMA TO BE IVORY GRADING INTO LIGHT GREEN, AND BACKED UP WITH GOLDEN YELLOW. THE SCROLLS TO BE BLUE. THE ORNAMENTATION IN THE FRIeze TO STAND IN RATHER HIGH RELIEF.

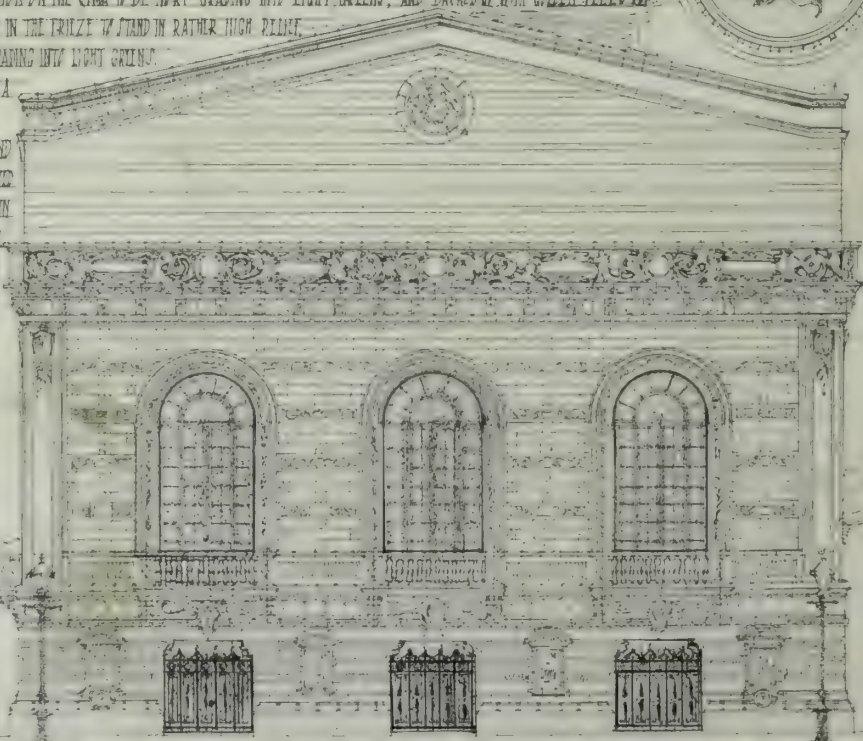
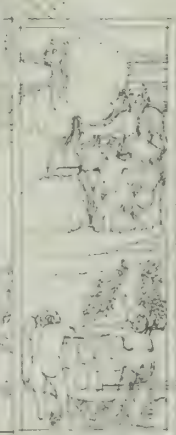
TO BE IN THE IVORY TINT WITH THE PLANTING GRADING INTO LIGHT GREEN.

THE PANELS TO BE IN GOLDEN YELLOW AND ALL ON A BACKGROUND OF BLUE.

THE INTERIOR COLOR SCHEME TO BE BLUE AND GOLD. THE LIVERY, INTERIOR AND STAIR CASE TO BE ENAMELED TERRAZZO. THE WALLS, FLOORS, IN Foyer ETC. TO BE IN PATENT. COILING IN GRAND Foyer THE ORNAMENTAL PLASTER, RICHLY COLORED. PART AND COLUMNS IN GRAND Foyer TO BE IN ITALIAN MARBLE.



SUBMITTED BY

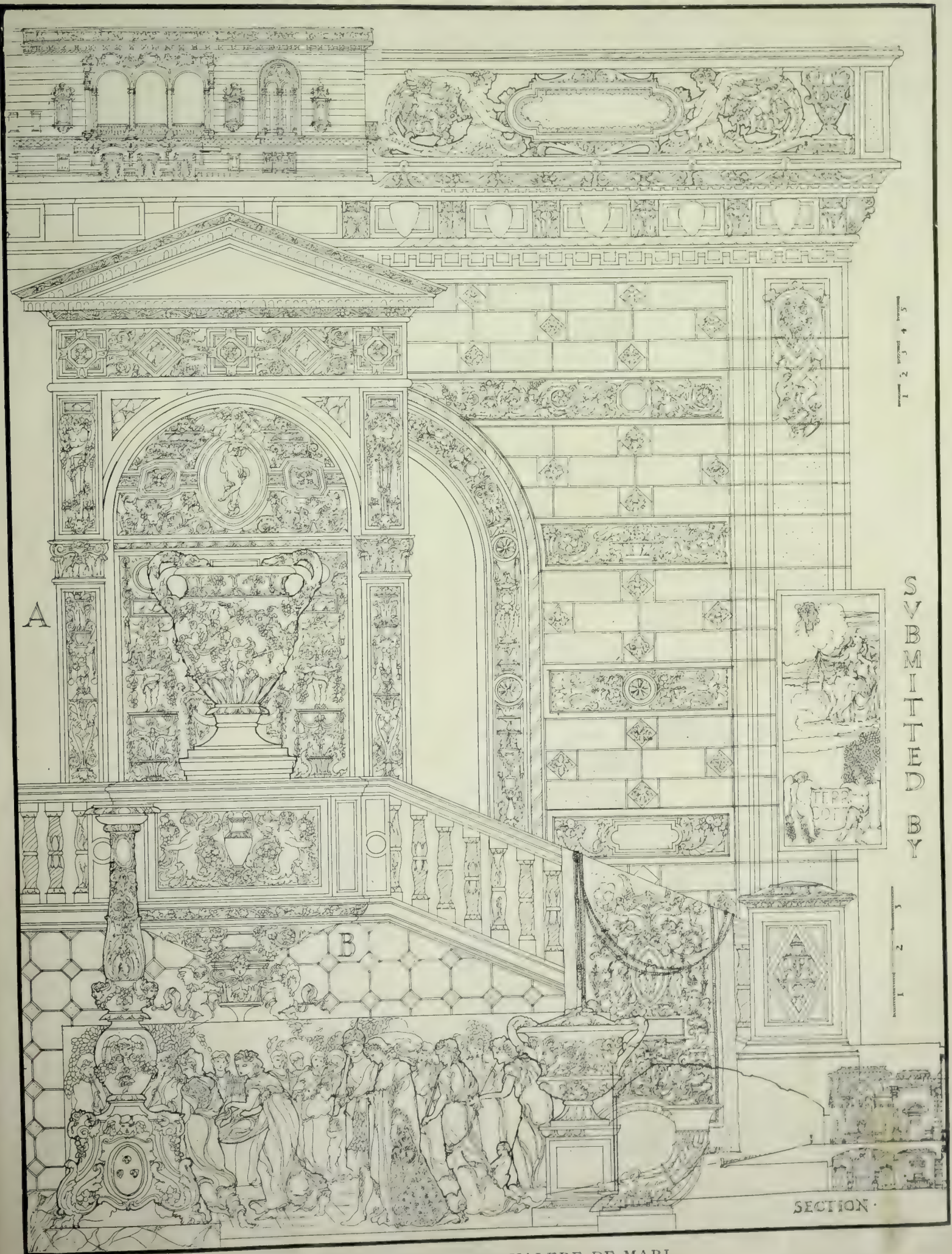


5 10 15 20 25

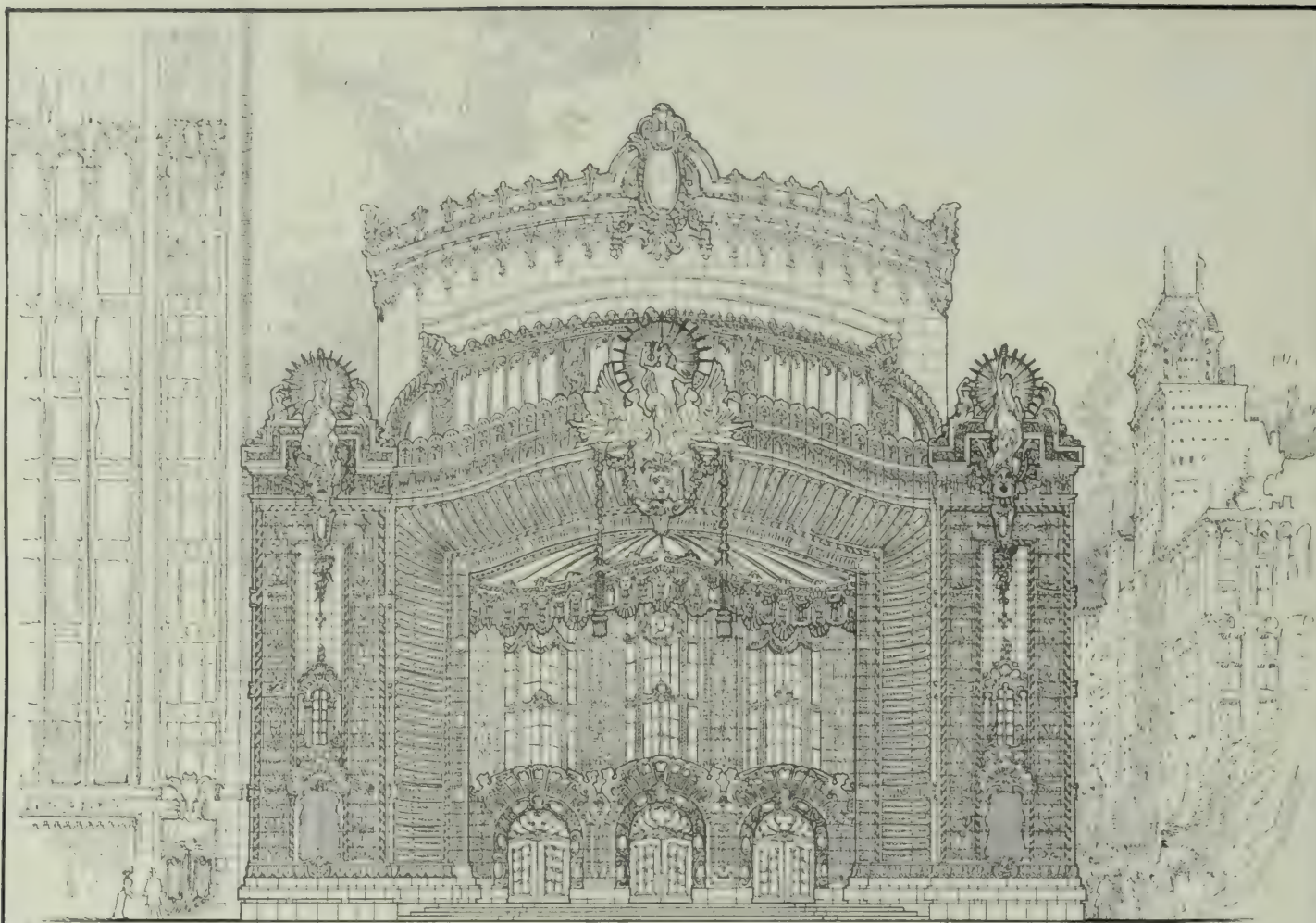
BRICK-BUILDER

THIRD PRIZE DESIGN.

SUBMITTED BY WALTER VALERE DE MARI, SACRAMENTO, CAL.



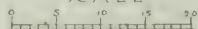
DETAILS BY WALTER VALERE DE MARI.



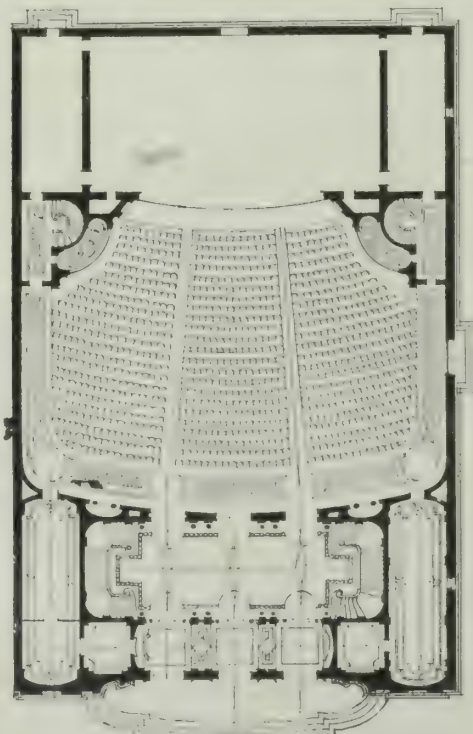
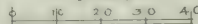
A THEATRE BUILDING

FRONT ELEVATION

SCALE

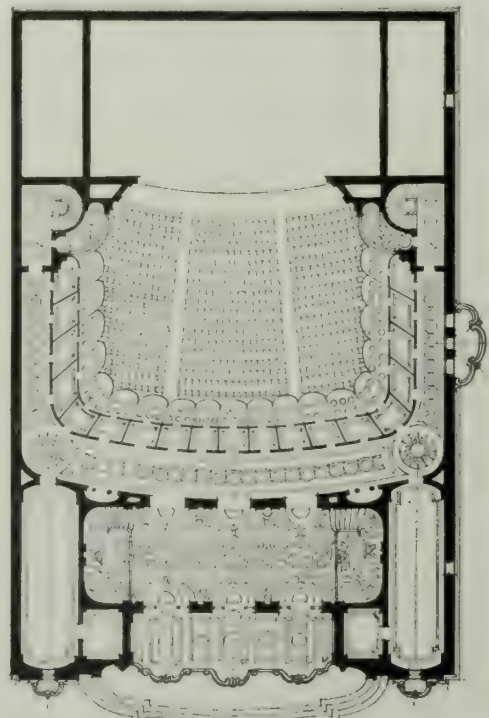


PLANS



FIRST FLOOR PLAN

COLOR
ALL TERRA COTTA TO BE SEMI-GLAZED. THE ARABESQUES AND MODELLED SURFACES TO BE OF DULL GREENS AND REDS WITH BLUE BACKGROUND. BAS RELIEFS TREATED IN A DELIA ROBBIAN MANNER. HALOS TO BE A GOLDEN YELLOW. PLAIN SURFACES TO BE OLD IVORY.

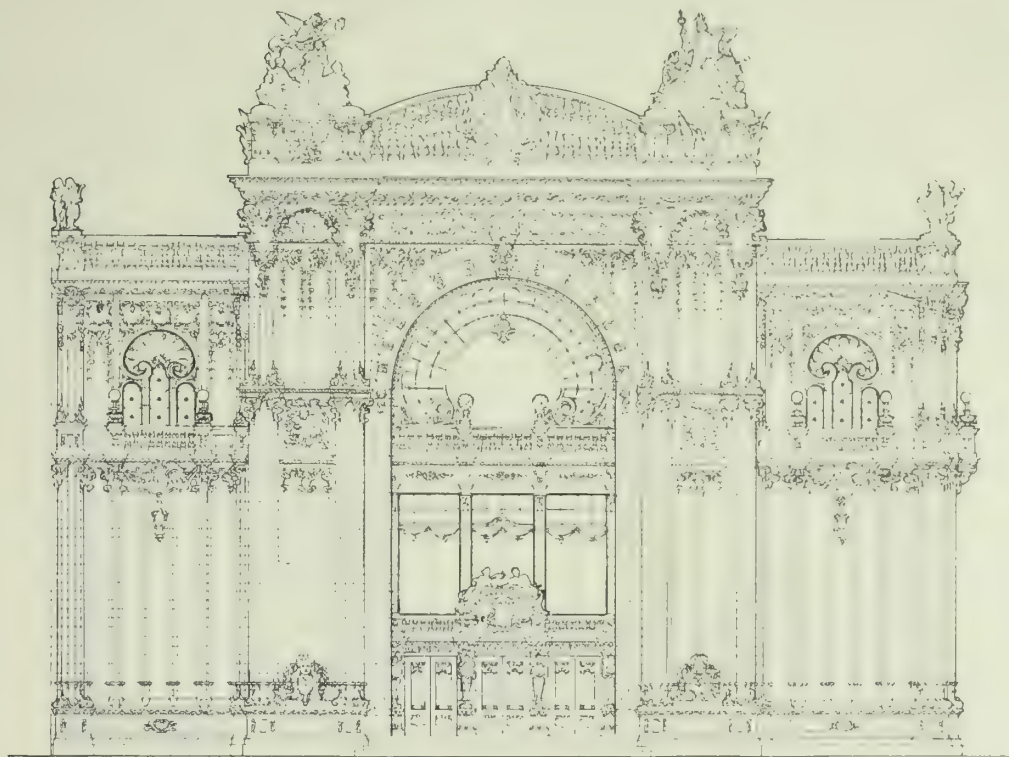


SECOND FLOOR PLAN

FIRST MENTION.

SUBMITTED BY EDWARD F. MAHER AND HUBERT G. RIPLEY, BOSTON.

COMPETITION FOR A THEATER BUILDING

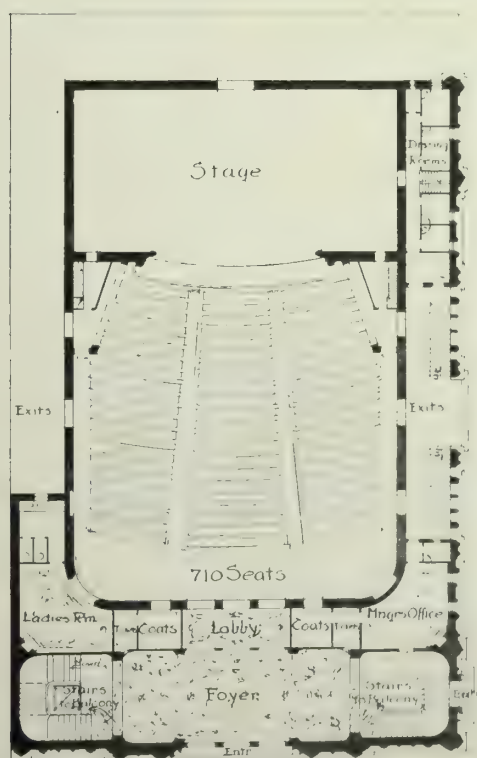


Color of walls
light buff - with
leaf ornaments in
cornices and

FRONT ELEVATION

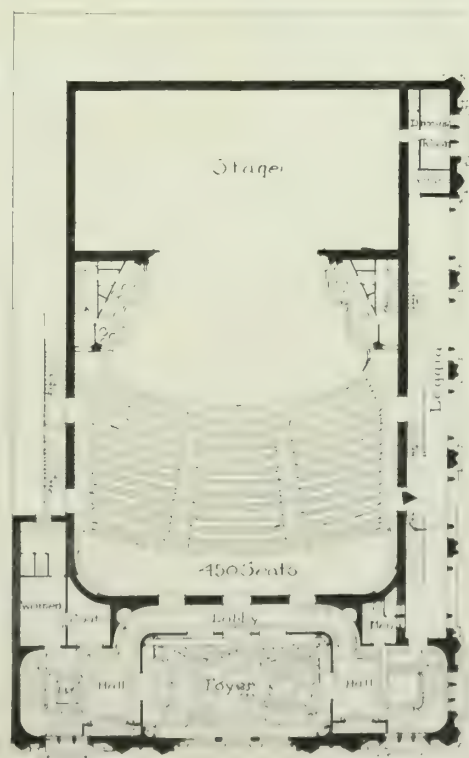
Scale 1" = 10' 0"

friezes & under
loggia and bal-
conies in green
and red.....



FIRST FLOOR PLAN

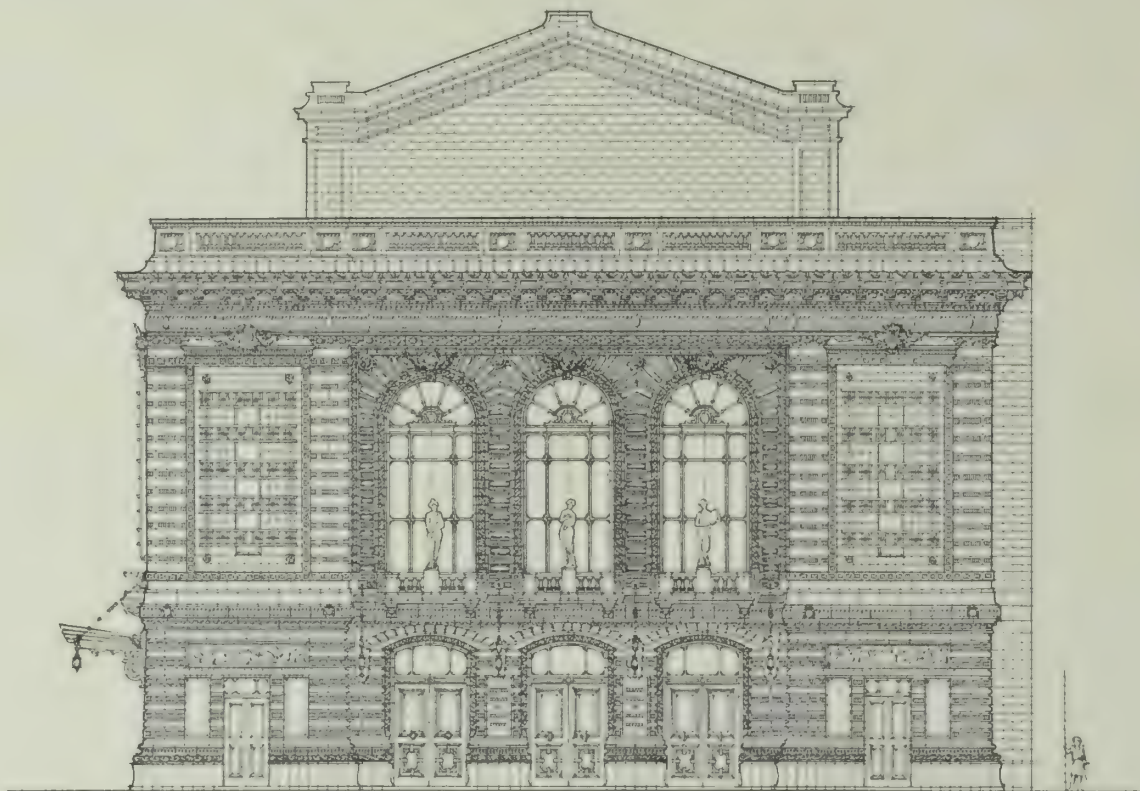
Scale 1" = 5' 0"



BALCONY FLOOR PLAN

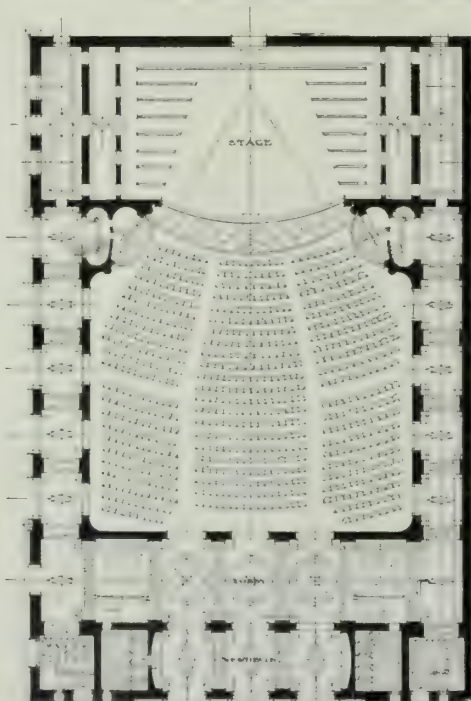
-Odd-

SUBMITTED BY ODD TORP, NEW YORK.

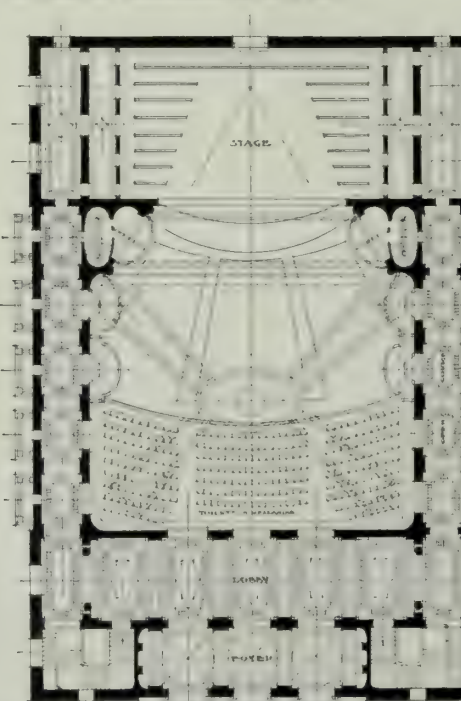


• FRONT ELEVATION •

BODY - CREAM COLORED MAT GLAZED; ORNAMENTAL PARTS, PRINCIPALLY CREAM COLORED WITH SAGE GREEN BACK GROUND; CORNICE, SOFFITS & BRACKETS FLAID OUT WITH DULL REDS; BORDERS AROUND ELECTRIC SIGNS - YELLOW & BLUE; BACK GROUND; BAS RELIEFS LIGHTER IN COLOR THAN THE BODY OF BUILDING WITH DULL POLYCHROME BACKGROUND SUGGESTING LANDSCAPE: ©1916-1&11



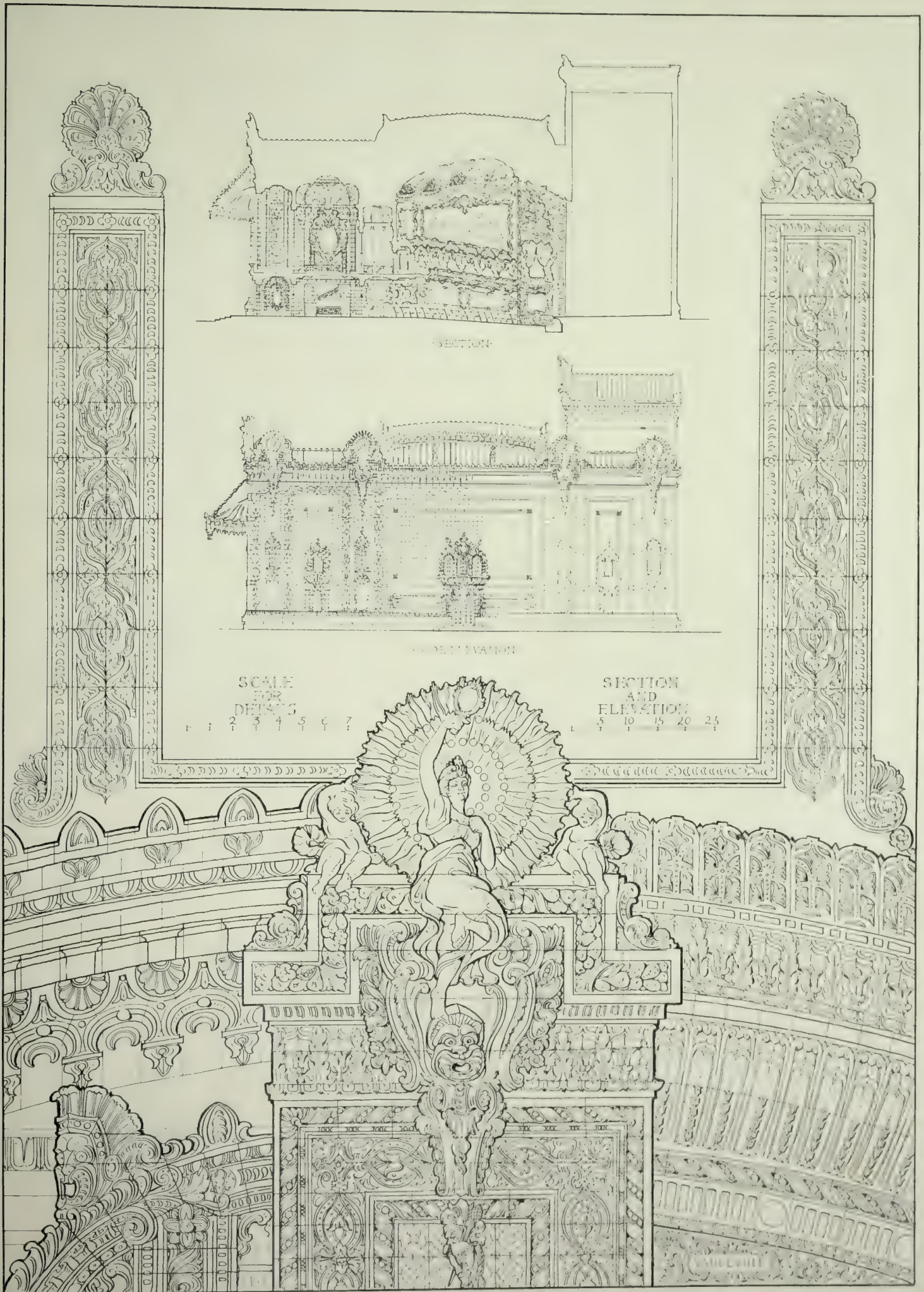
• GROUND FLOOR PLAN •



• FOYER FLOOR PLAN •

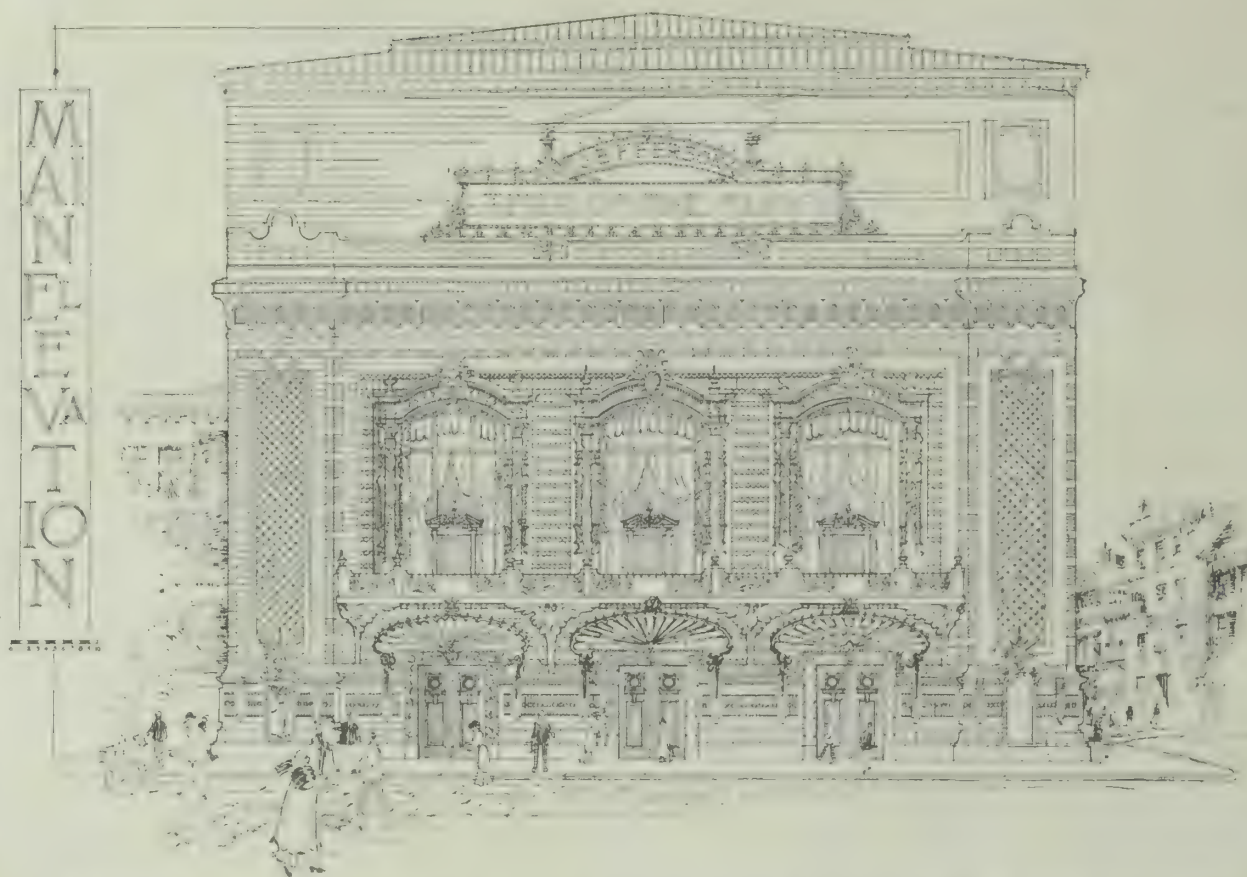
THE BRICKEVILDER COMPETITION FOR A THEATRE BUILDING

SUBMITTED BY EDDY FAIRCHILD, NEW YORK.

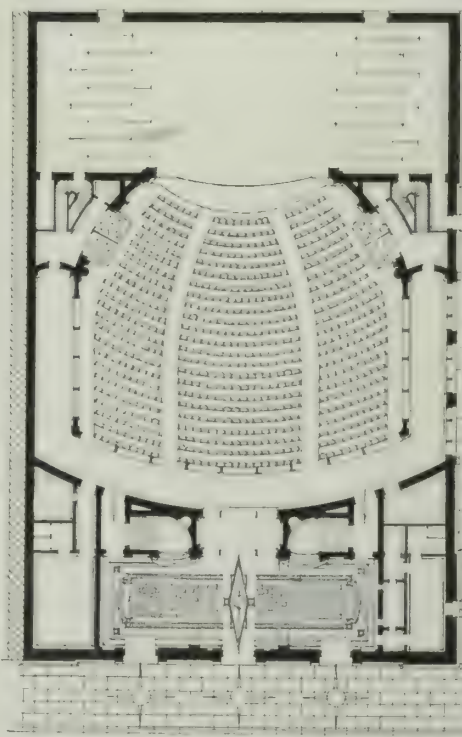


DETAILS BY EDWARD F. MAHER AND HUBERT G. RIPLEY.

MAIN
ELEVATION

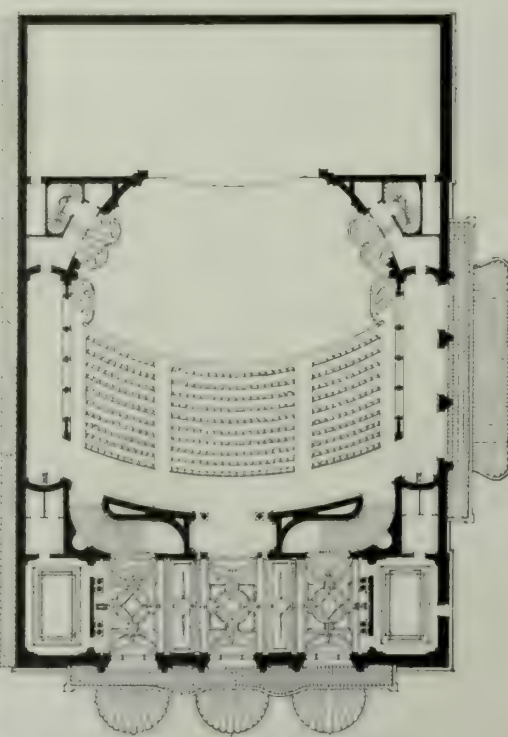


TO ORNAMENT, ABOVE WINDOWS, OF A CREAM COLOR
 AGAINST A FIELD OF WARM GRAY. DRYED HAVE I SOME
 OF GREEN, PURPLE, BROWN, & BLUE, WARM, WITH
 GRAY, WITH COLOR, IS CARRIED UP WITH A LIGHT GRAY.



FIRST FLOOR PLAN

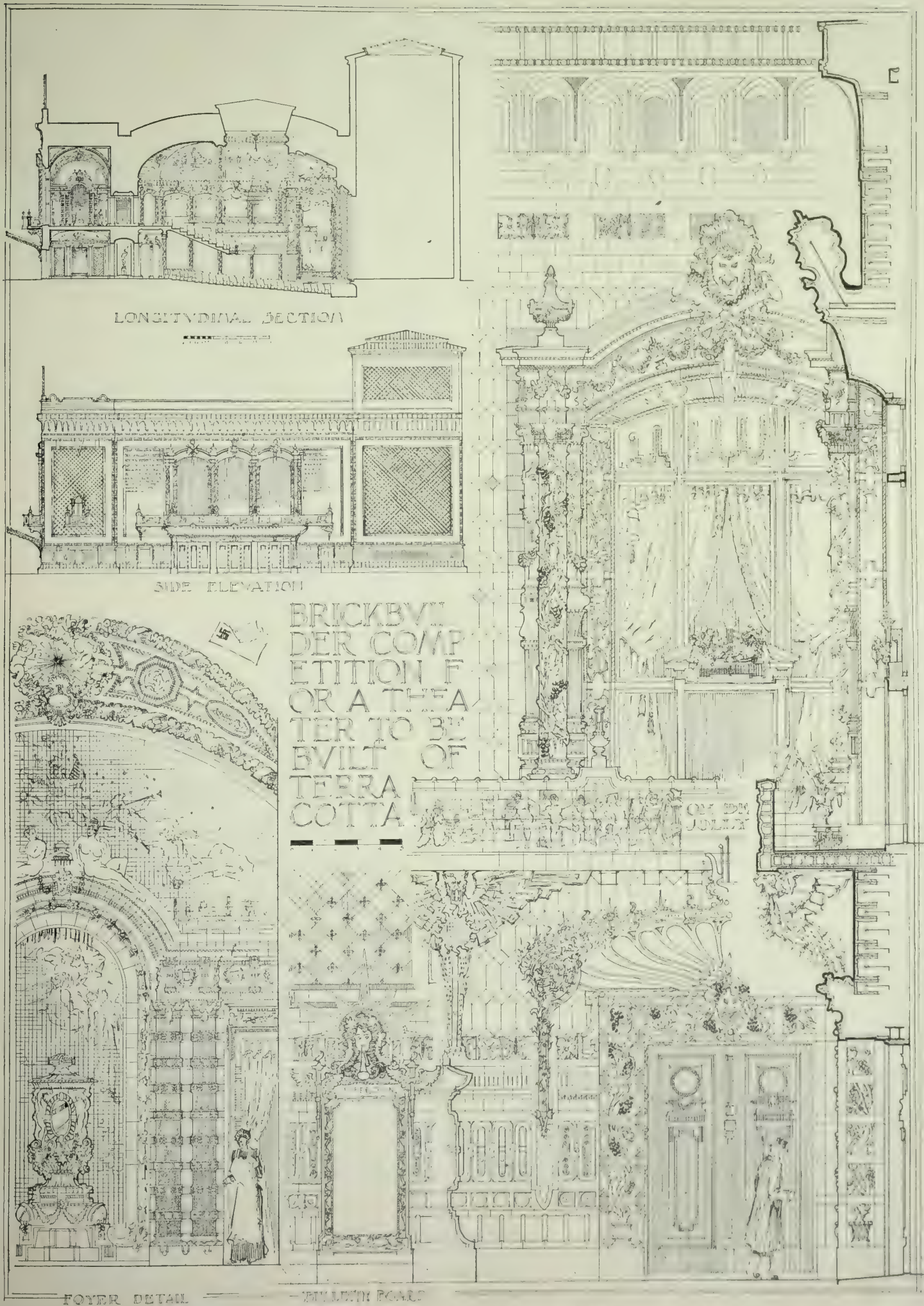
BRI
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IL-OF
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COTTA



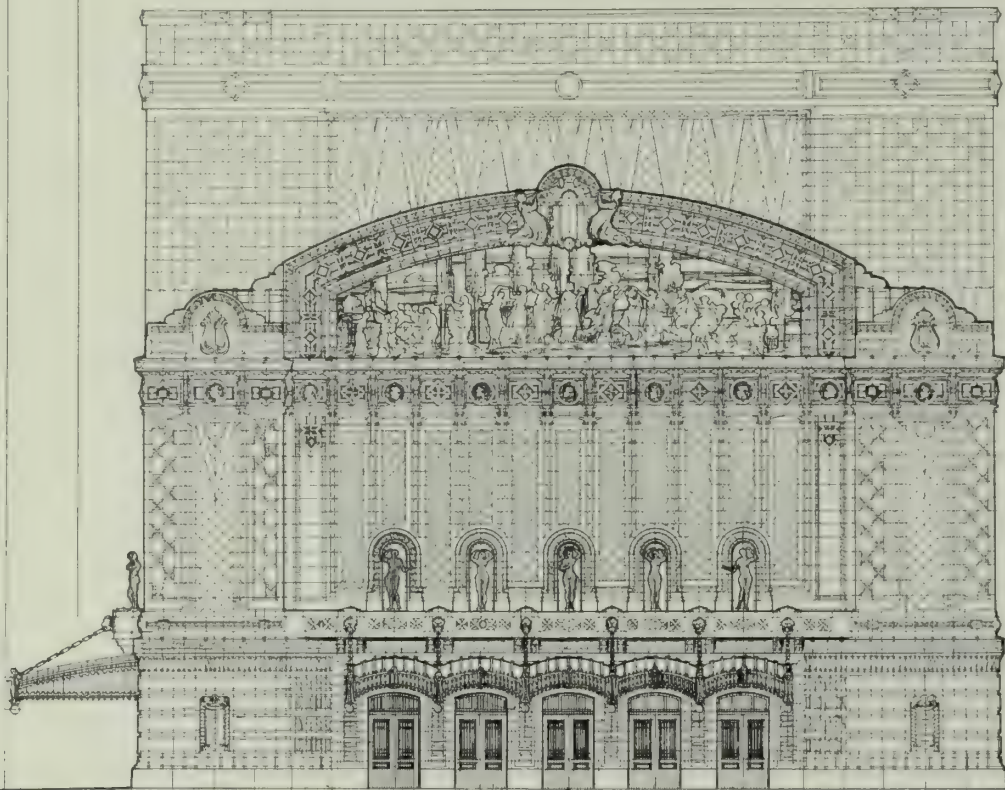
BALCONY FLOOR PLAN

SECOND MENTION.

SUBMITTED BY JOSEPH MCGINNISS AND MAURICE P. MEADE, BOSTON.

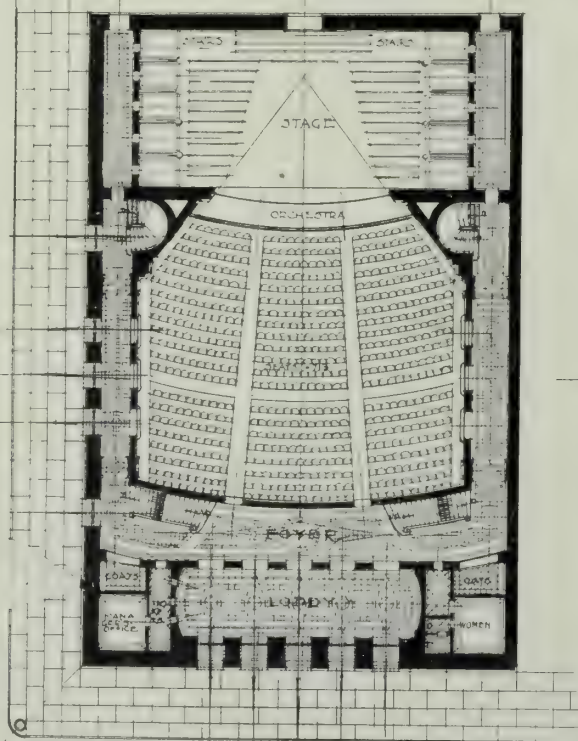


DETAILS BY JOSEPH MCGINNISS AND MAURICE P. MEADE.

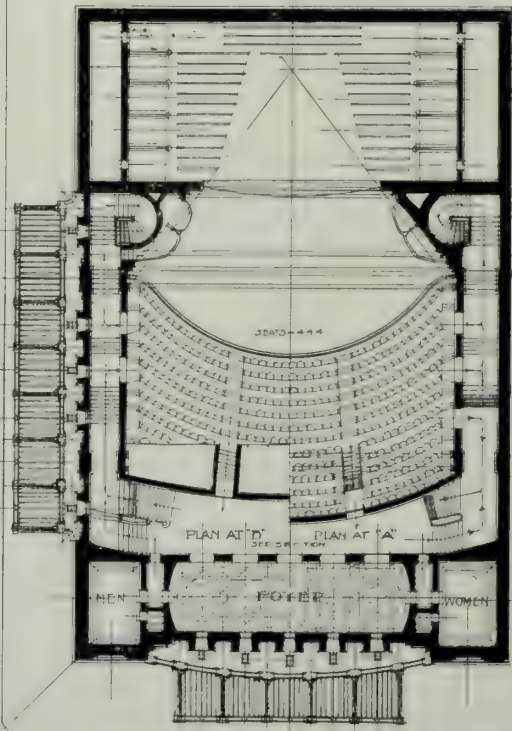


FRONT ELEVATION **

- BODY OF BUILDING - IS - SEMI-GLAZED - GREY - TERRA-COTTA - VERGING ON - BUFF -
 - SHADES OF - GREY - GREEN - LEANING TOWARDS THE DARKER SHADES -
 - SALMON-RED - * PANEL IN FAIENCE - WITH SCHEME - SIMILAR TO - MEDALLIONS -
 IN GENERAL THE COLOR SCHEME IS - AFTER DELLA ROBBIA - HEADS IN - MEDALLIONS
 ARE - CREAM-WHITE - ON - A - PALE BLUE-GROUND * STATUES - BRONZE -



FIRST FLOOR PLAN



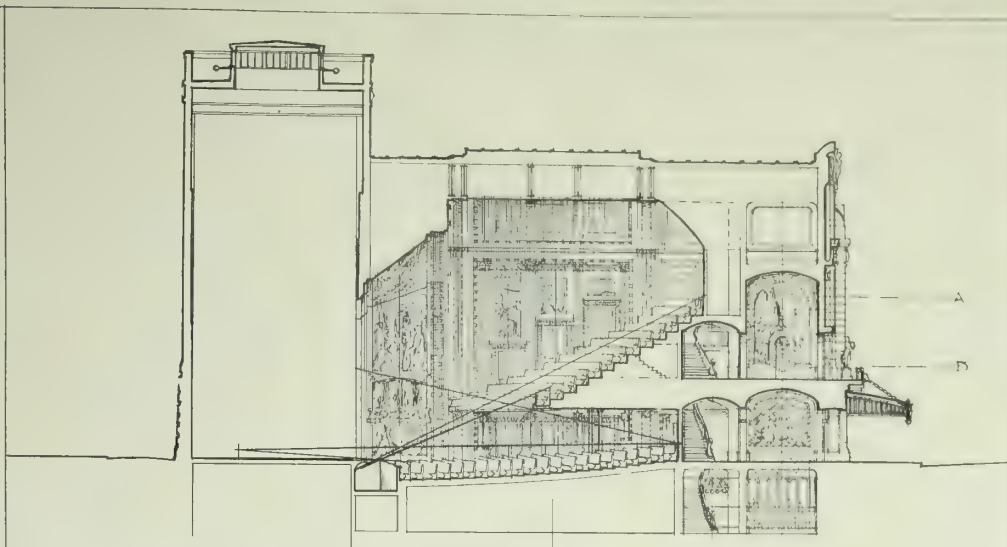
BALCONY FLOOR PLAN

SUBMITTED BY



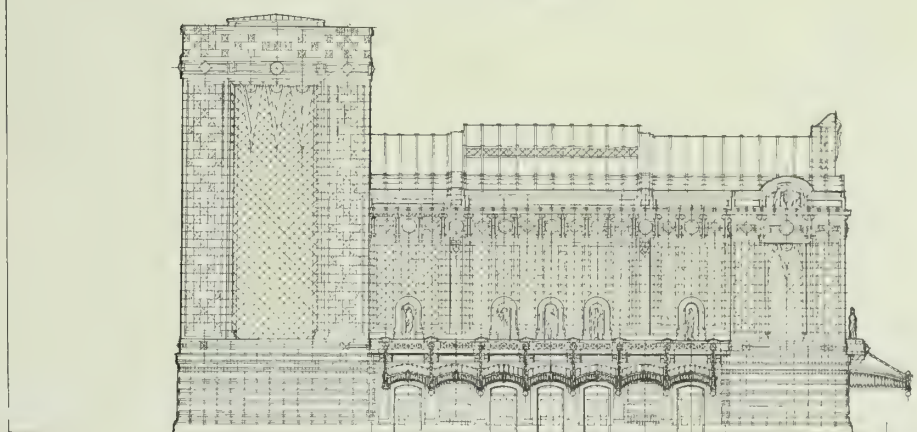
THIRD MENTION.

SUBMITTED BY GEORGE AWSUMB, CHICAGO.



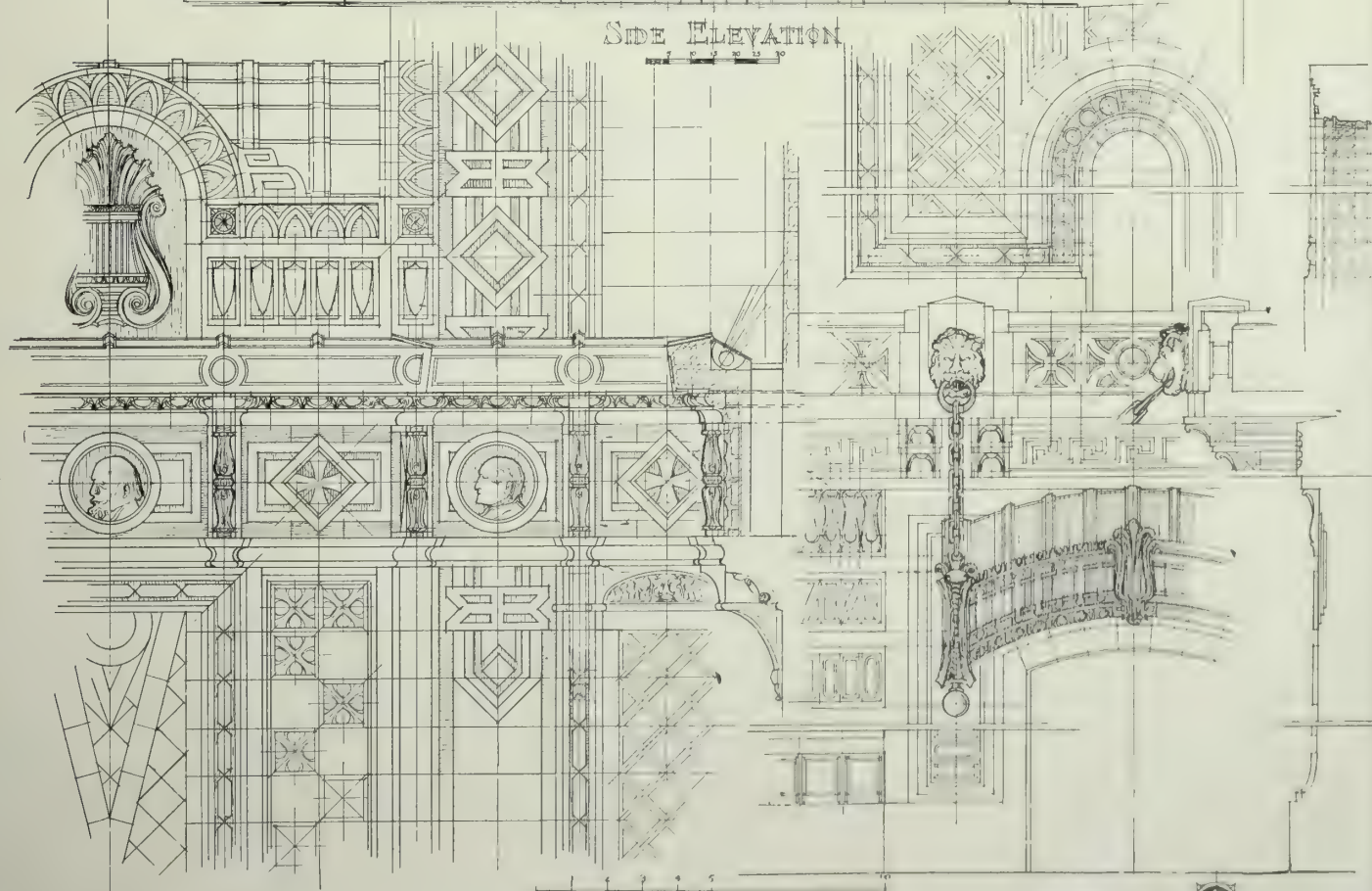
SECTION

1 2 3 4 5 6 7 8 9 10



SIDE ELEVATION

1 2 3 4 5 6 7 8 9 10

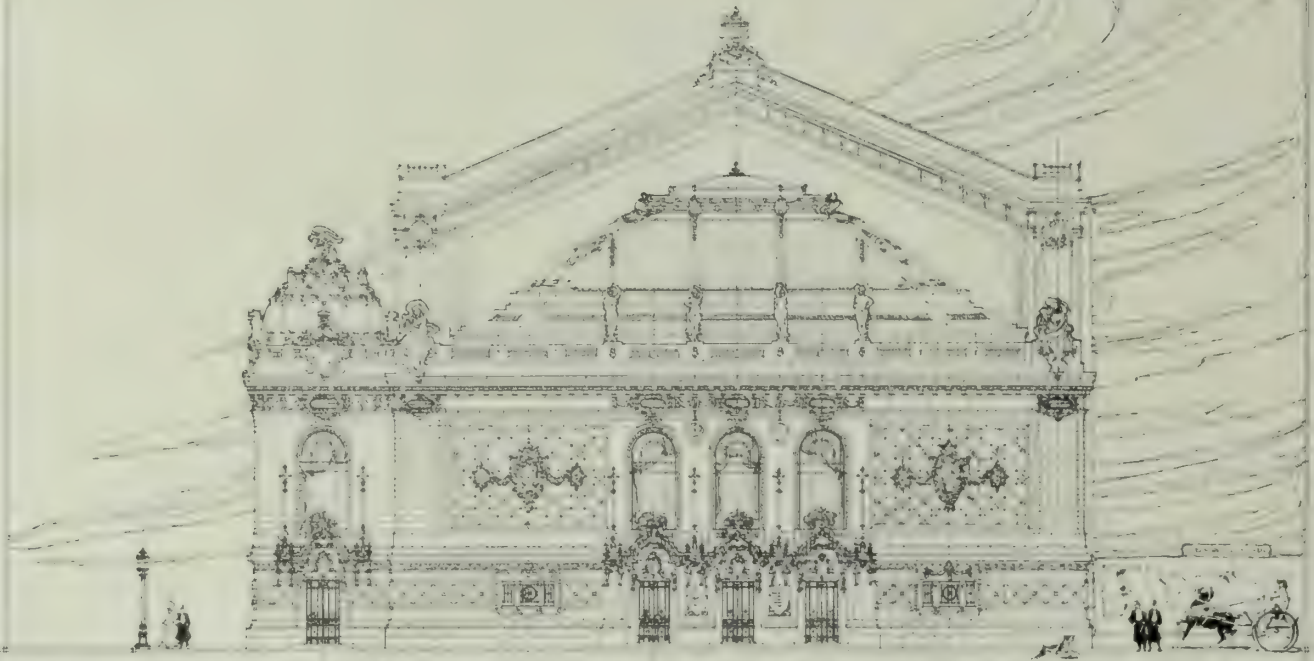


1 2 3 4 5 6 7 8 9 10

DESIGNED BY

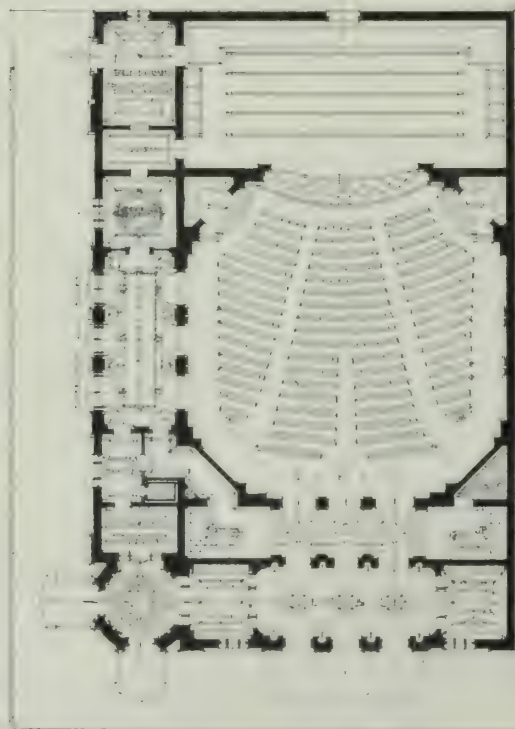


DETAILS BY GEORGE AWSUMB.



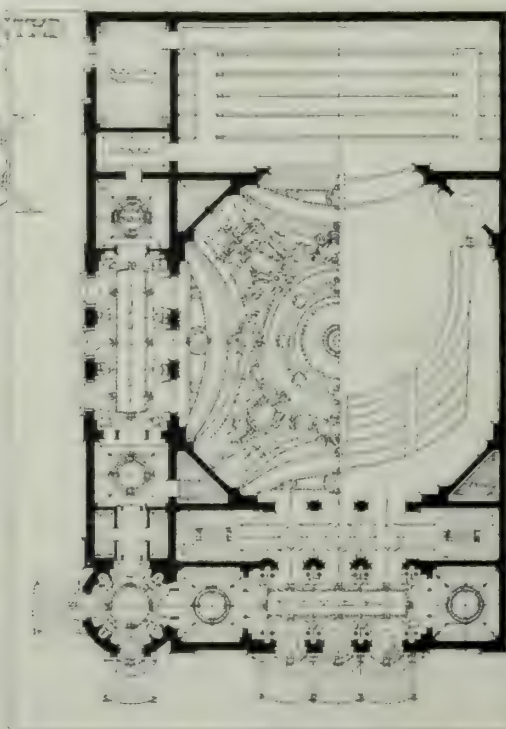
THEATRE BLDG. COMPETITION

SCALE FOR ELEVATION
 1" = 10'



FIRST FLOOR PLAN

DESIGNED BY

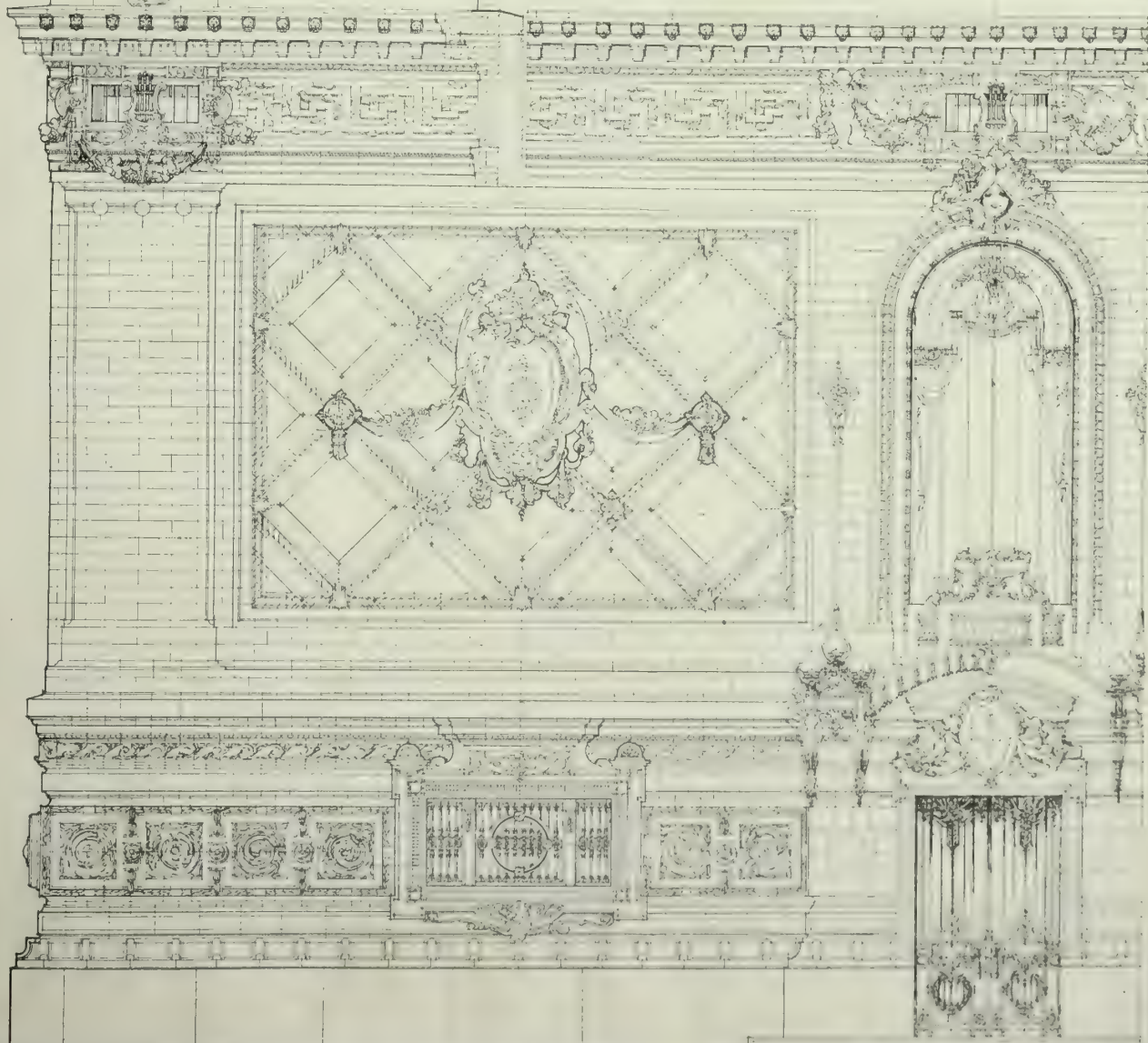
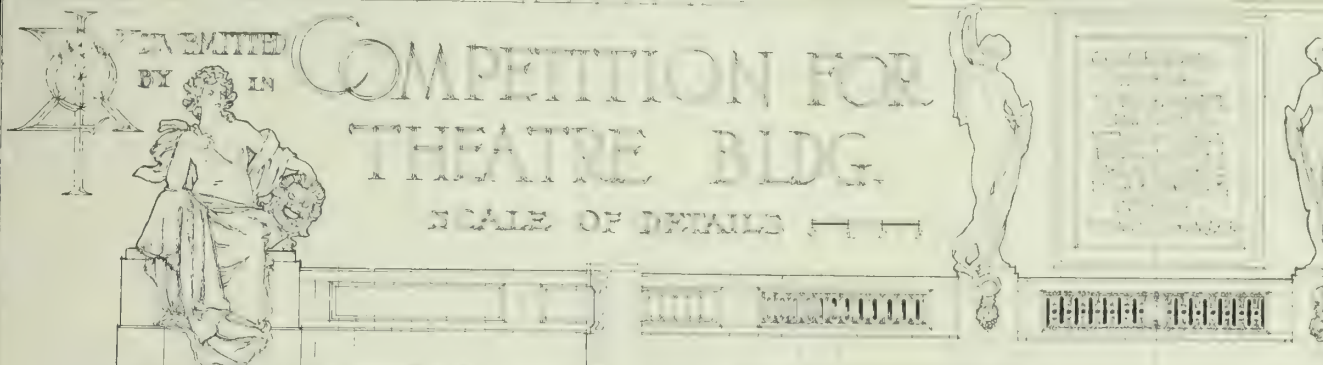
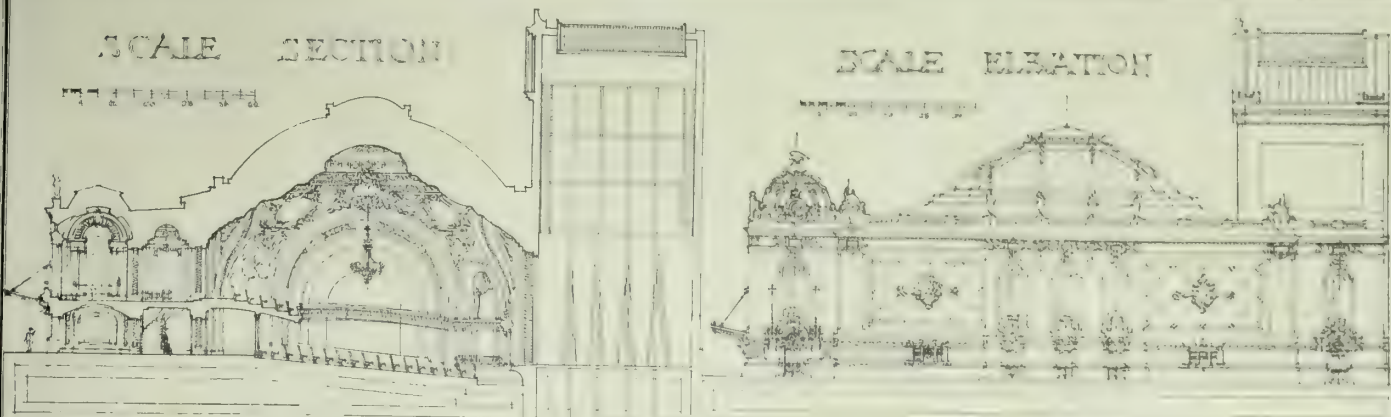


SECOND FLOOR PLAN

FOURTH MENTION.
 SUBMITTED BY ISRAEL PIERRE LORD, BOSTON.

SCALE SECTION

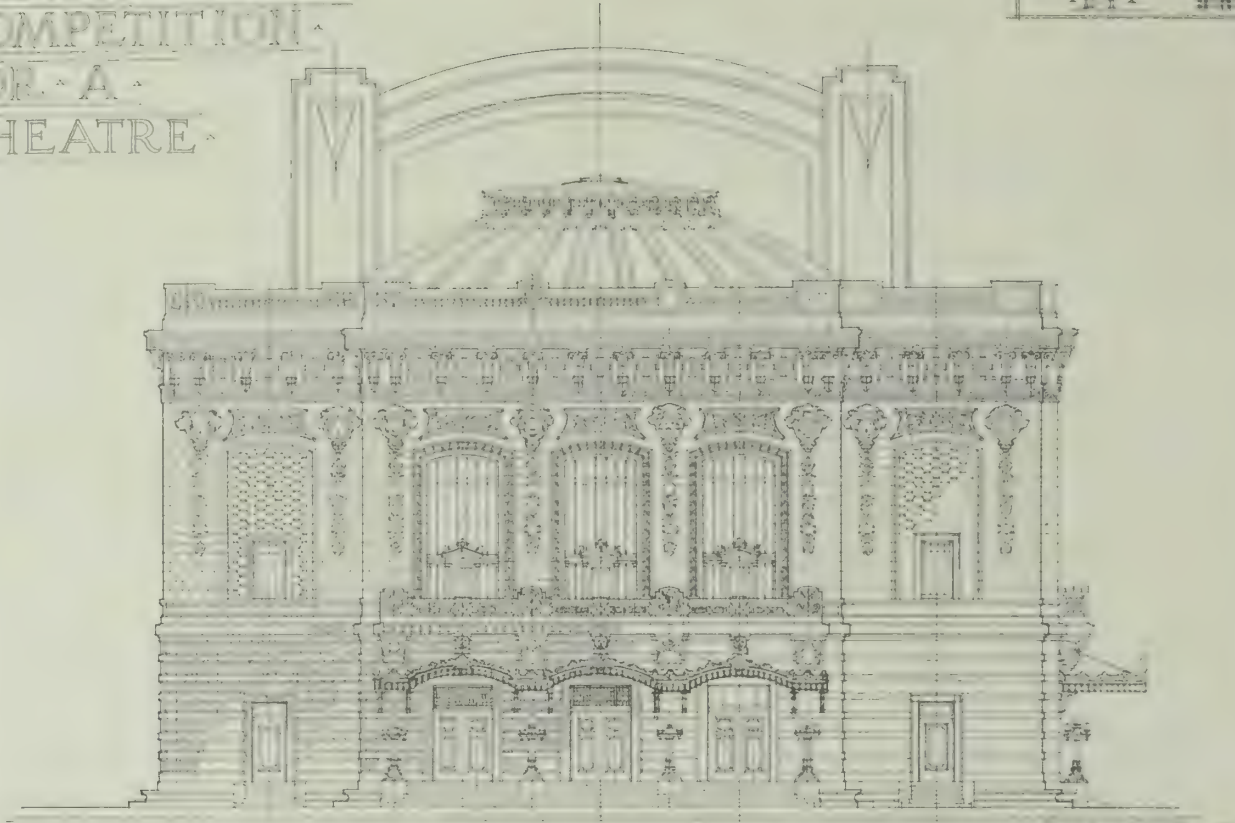
SCALE ELEVATION



DETAILS BY ISRAEL PIERRE LORD.

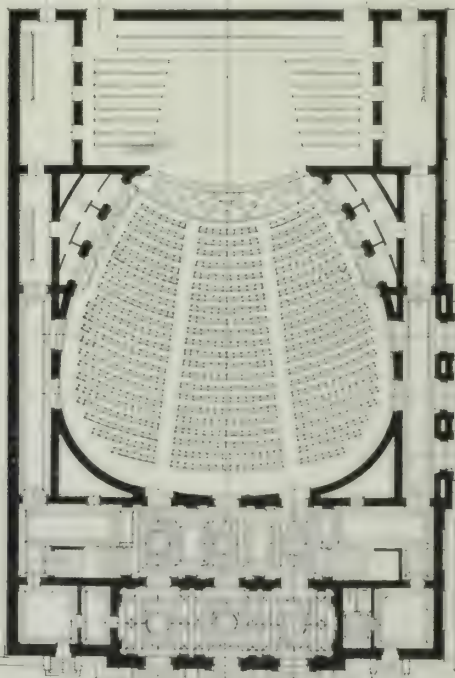
BRICKEVILDER
COMPETITION
FOR A
THEATRE

SUBMITTED
BY

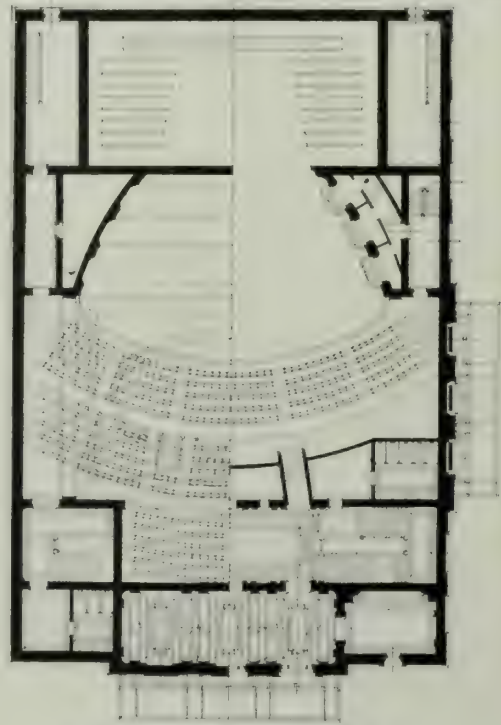


MAIN ELEVATION

THE BUILDING IS TO BE OF SEMI-GLAZED TERRA-COTTA ENRICHED WITH FAIENCE. THE BODY COLOR IS TO BE A LIGHT BUFF WITH ORANGE-RED BALCONIES AND WINDOW TREATMENT VARIED BY THE INTRODUCTION OF PINK AND GOLDEN-YELLOW. THE DETAILS BEING PICKED OUT BY THE JUDICIOUS USE OF BLUE AND GREEN. THE LOBBY IS TO BE ENTIRELY OF FAIENCE. THE PREVAILING COLORS BEING CREAM, COBBLIN BLUE AND LIGHT GREEN.



FIRST FLOOR PLAN



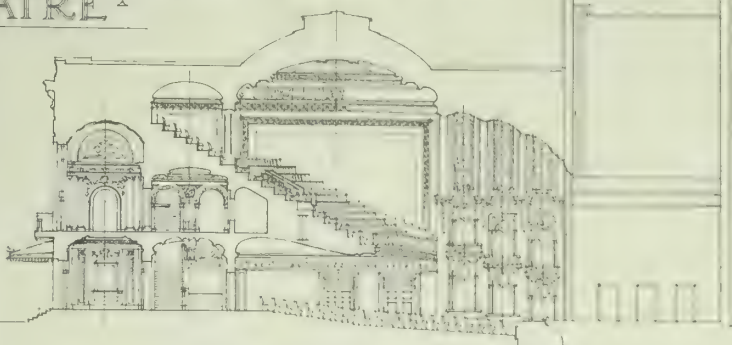
BALCONY FLOOR PLAN

FIFTH MENTION.

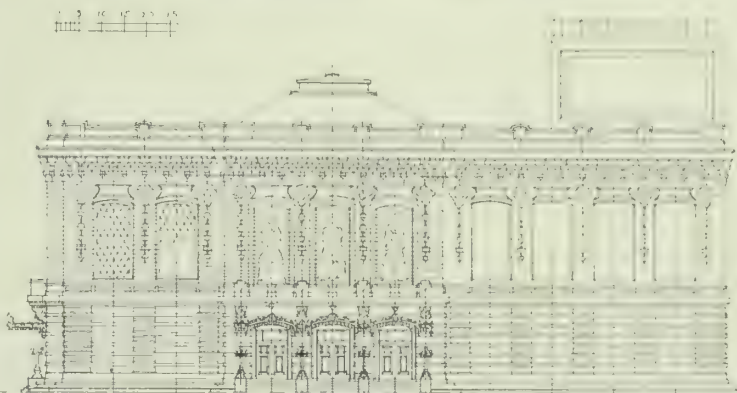
SUBMITTED BY WILFRED ARNOLD PAINE, COLUMBUS, OHIO.

BRICKBILDER ^ COMPETITION ^ FOR ^ A ^ THEATRE ^

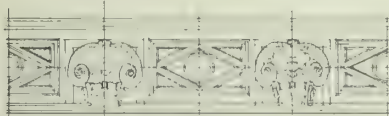
SUBMITTED
BY



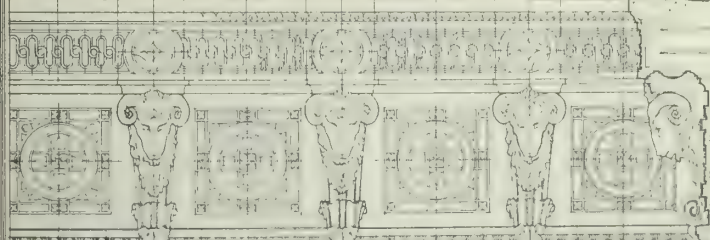
^ LONGITUDINAL ^ SECTION ^



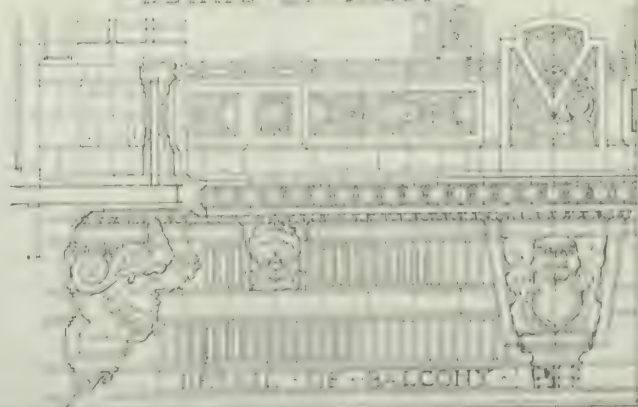
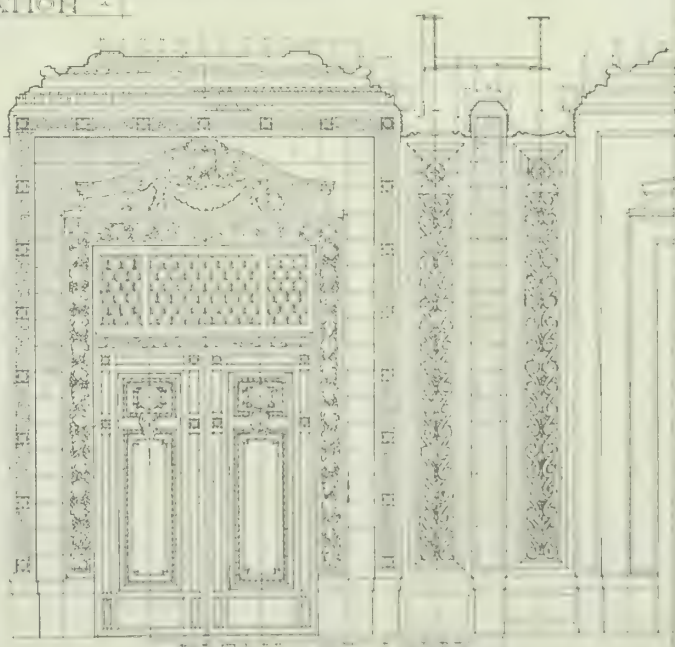
^ SIDE ^ ELEVATION ^



SCALE OF DETAILS



^ EXTERIOR ^
^ DETAILS ^

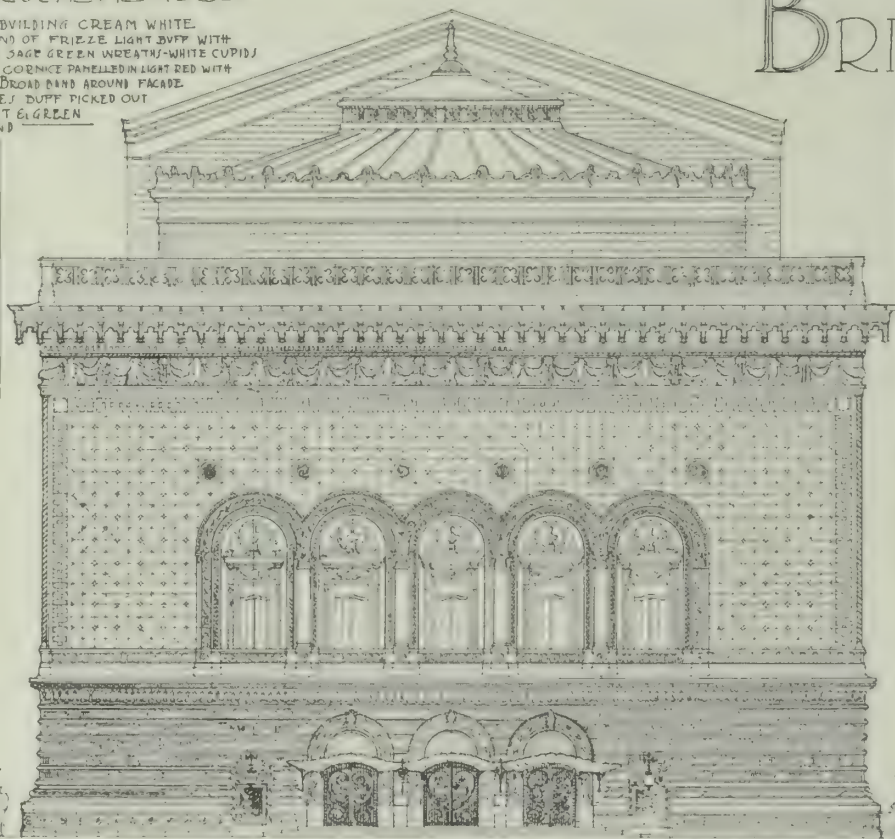


^ DETAILS OF BALCONY ^

DETAILS BY WILFRED ARNOLD PAINE.

COLOR SCHEME TO BE -

BODY OF BUILDING CREAM WHITE.
BACKGROUND OF FRIZZE LIGHT BUFF WITH
DELT AND SAGE GREEN MENTAL WHITE CUPIDS
JOINTS OF CORNICE PANELLING LIGHT RED WITH
LIGHT BROWN BORDERS AROUND FACADE
AND ARCHES BUFF PICKED OUT
WITH DEFT GREEN
BACKGROUND
OF LOUGIA
DEFT BUFF
WITH DEFT
AND GREEN
INTERNAME
NT.
INTERIOR
OF LOBBY
LIGHT BUFF
WITH GREEN
COLUMNS
PANELS
AND
VAULTS -
ON.



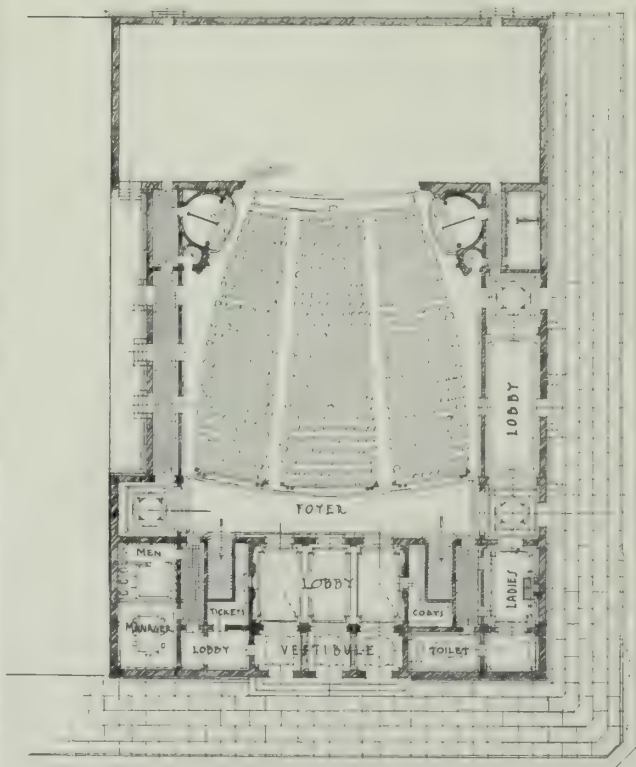
BRICKBILDER COMPETITION

FOR A THEATRE TO
BE BUILT OF ARCH
ITECTURAL TERRA-
COTTA AT CORN
ER OF TWO IM
PORTANT STREETS
IN A CITY OF M
ODERATE SIZE
IN THE UNITED
STATES OF
AMERICA

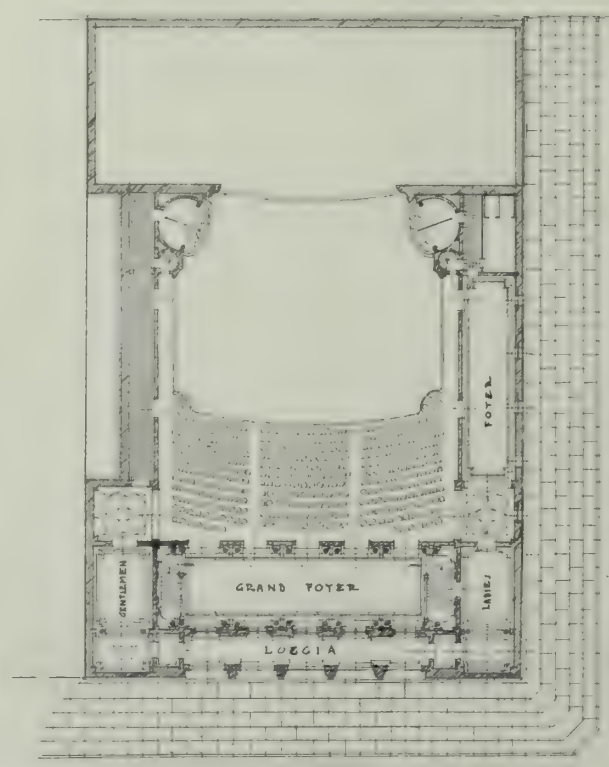
MAIN ELEVATION

SCALE

SUBMITTED BY
H. BELASKO



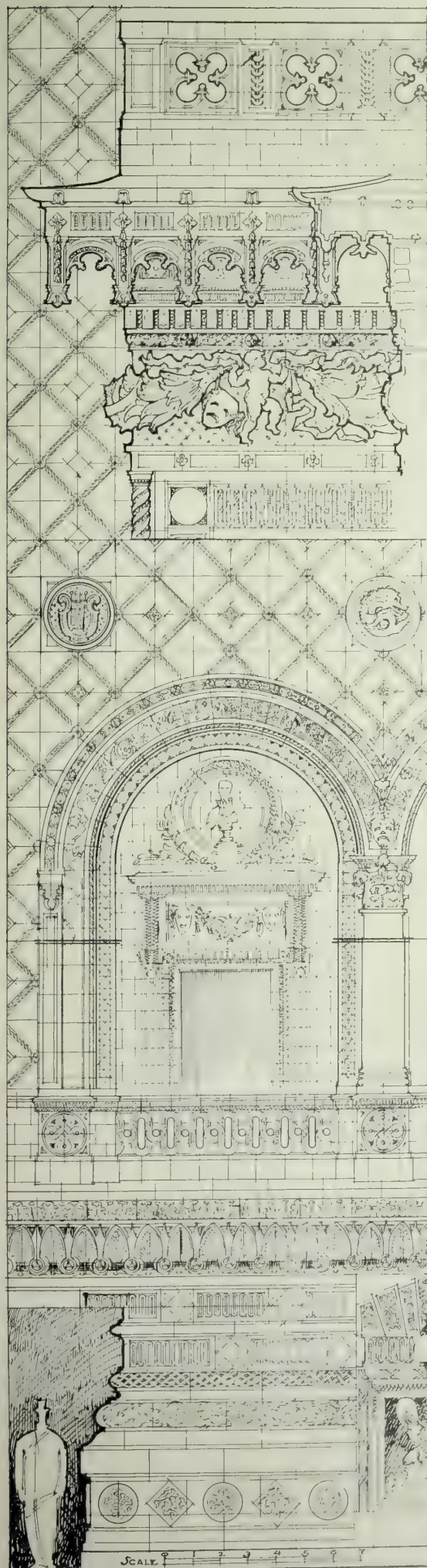
FIRST FLOOR PLAN



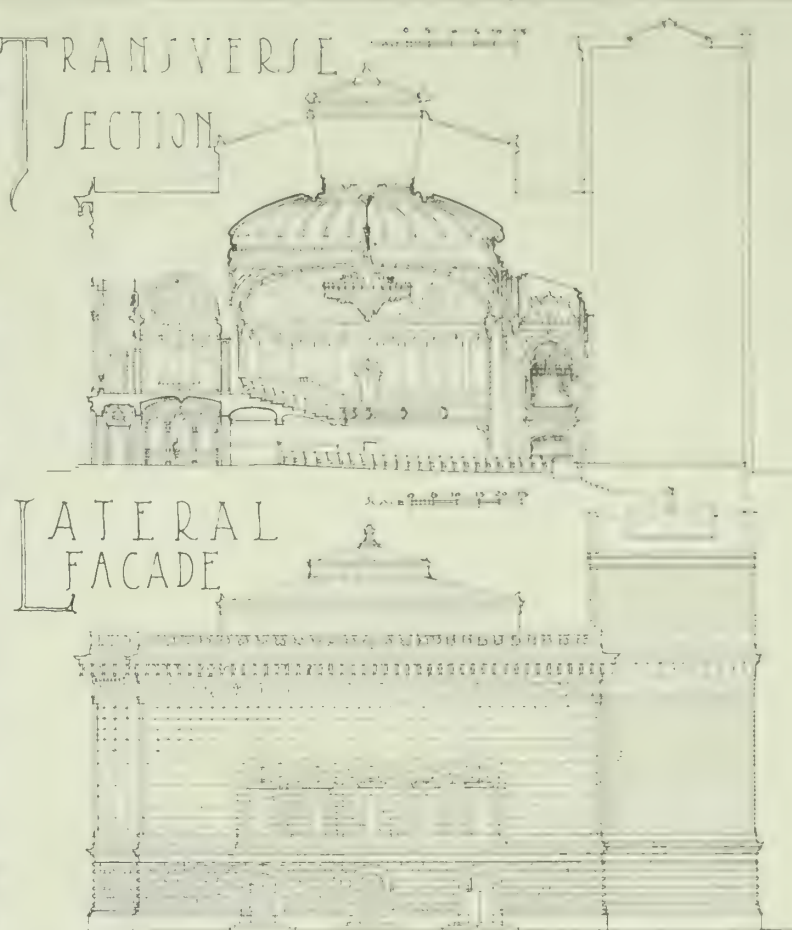
SECOND FLOOR PLAN

SIXTH MENTION.

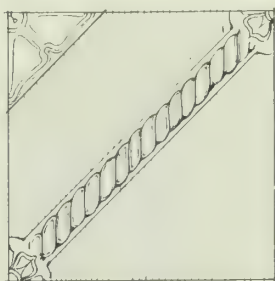
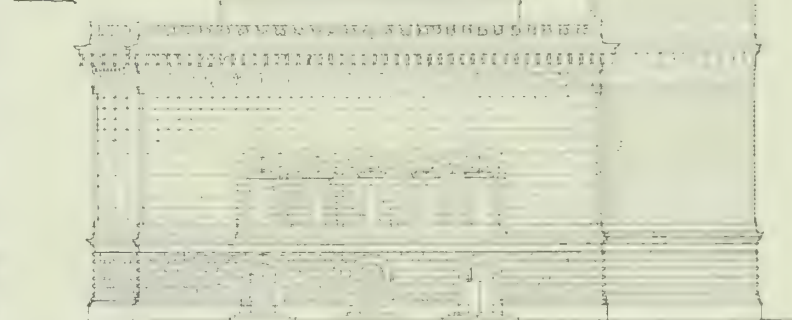
SUBMITTED BY J. T. WRINKLE AND A. A. BLODGETT, BOSTON.



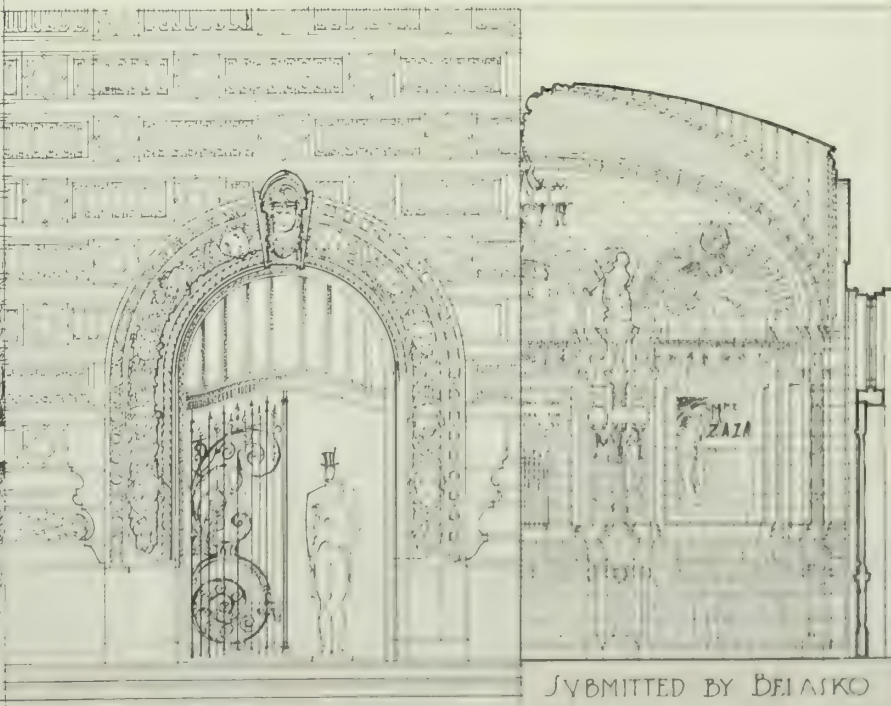
TRANSVERSE SECTION



LATERAL FACADE



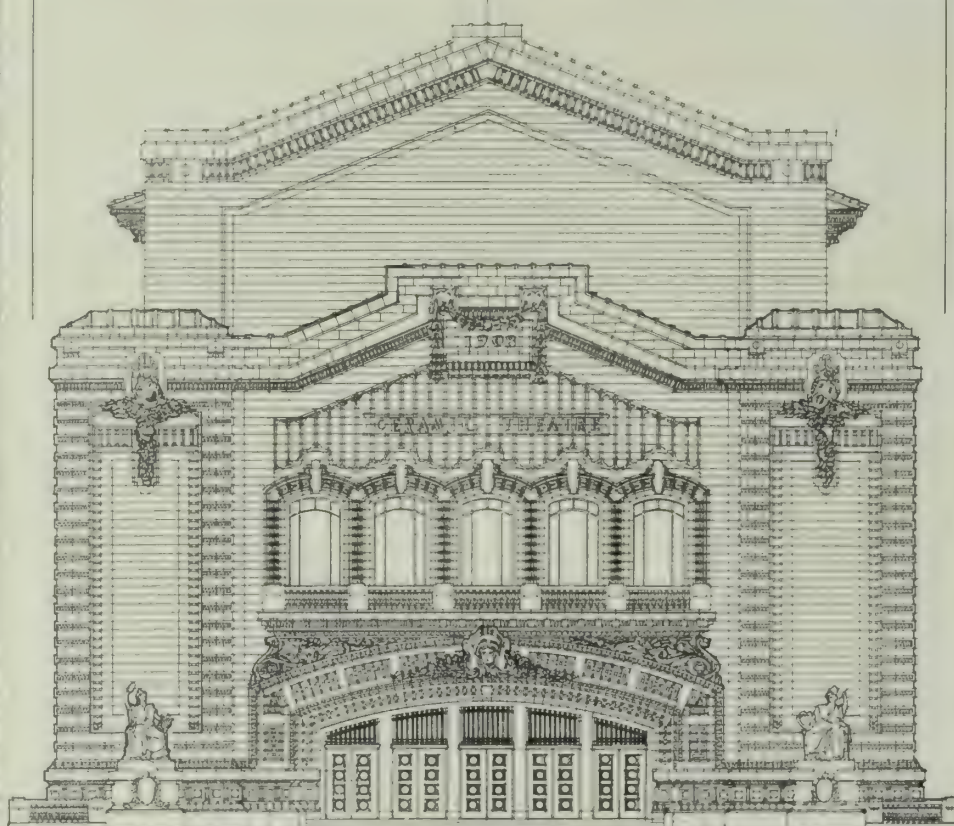
BRICKBUILDER COMPETITION
FOR A THEATRE TO BE BUILT
OF ARCHITECTURAL TERRA
COTTA AT THE CORNER OF
TWO IMPORTANT STREETS.



SUBMITTED BY BELASKO

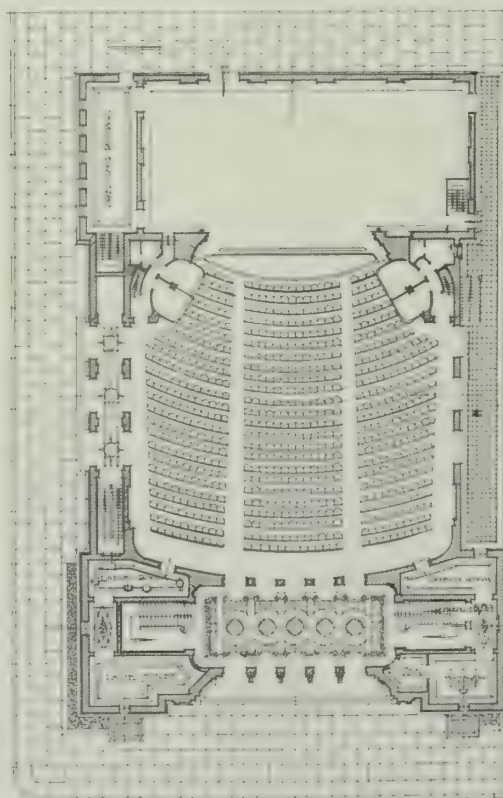
DETAILS BY J. T. WRINKLE AND A. A. BLODGETT.

COMFERTION OF A
THEATRICAL BUILDING

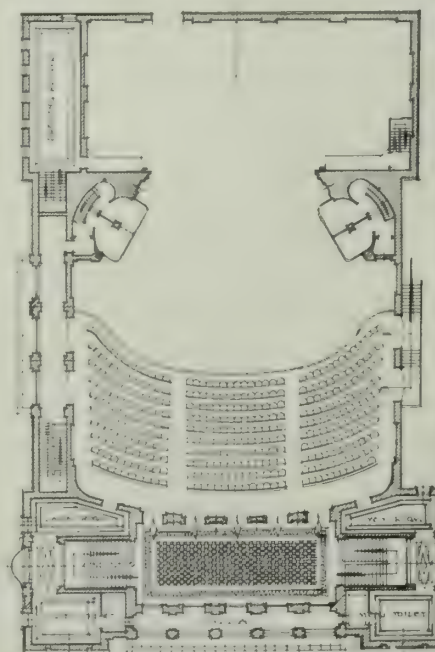


OF A THEATRICAL
BUILDING

MAIN ELEVATION



COLOR
SCHEME
LIGHT
CREAM
FOR BODY
COLOR
WITH
RED, PINK
YELLOW
& GREEN
FOR BACK
GROUND
OF ORNA-
MENTATION
QUETTES
IN BASE
COULD
TO BE
GREEN.



FIRST FLOOR PLAN

DESIGNED
BY
V. HUGO KOEHLER

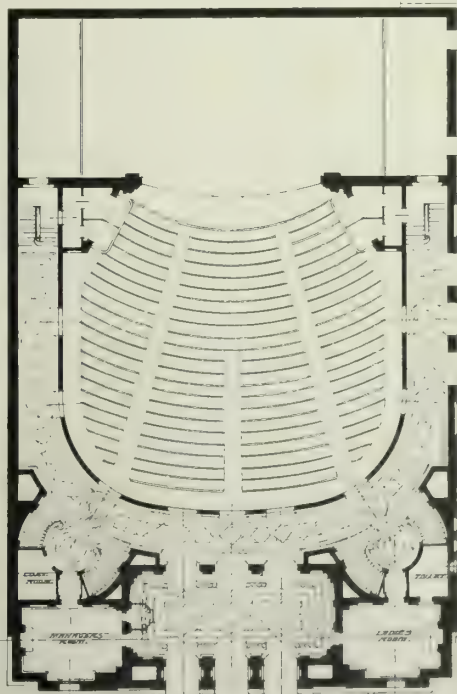
BALCONY PLAN

SUBMITTED BY V. HUGO KOEHLER, NEW YORK.



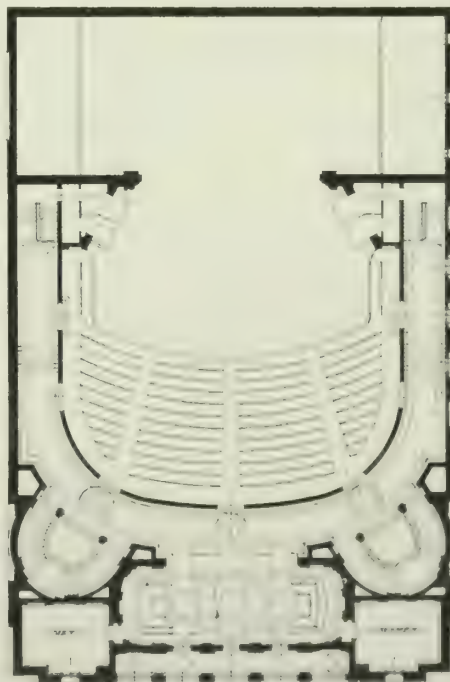
FRONT ELEVATION

COLOR SCHEME: BODY COLOR GRAYISH WHITE WITH BACKGROUND OF ORNAMENT IN FLAT TINT OF SAGE GREEN. DIST. IN FRONT TO BE GLAZED, SAGE GREEN. — LOGGIA TO BE IN CORRESPONDING TINT WITH THE WALLS.



FIRST FLOOR PLAN

THE
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FOR A
TERRA
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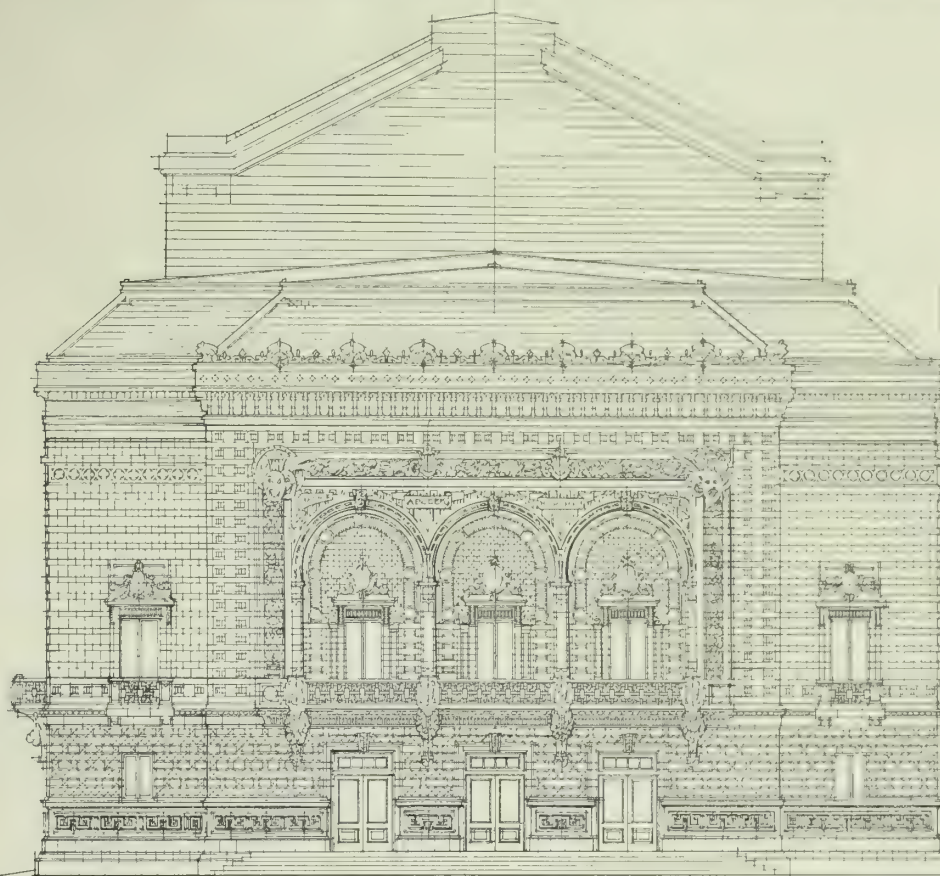


SECOND FLOOR PLAN

SUBMITTED BY H. C. PITTMAN AND HENRY H. BRAUN, NEW YORK.

BRICKBYLDER COMPETITION

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MAIN ELEVATION

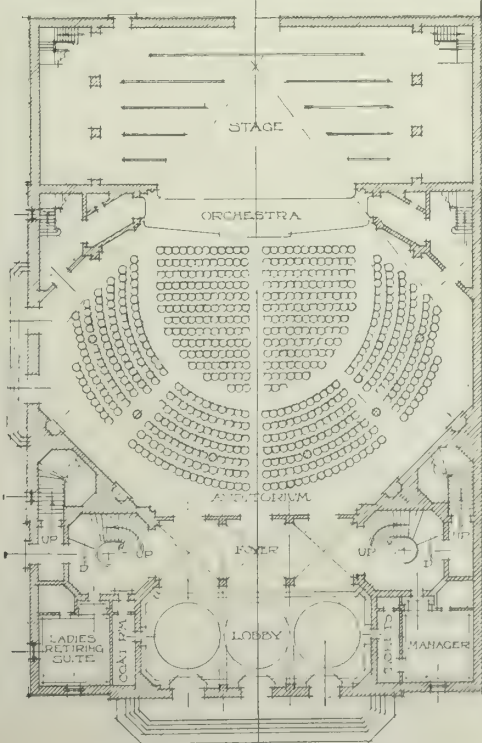
COLOR SCHEME.

BODY COLOR CREAM WITH DARKER SHADES IN RECESSES - ALTERNATE GREEN & RED SHIELDS IN THE CORNICE - INTERIOR OF LOGGIA - ELABORATELY DECORATED - BACKGROUND BLUE WITH A GOLD FLEUR-DE-LIS - LIGHT BROWN BAND BETWEEN LIGHTS - EXTERIOR OF LOGGIA - SPANDRELS OF BODY COLOR WITH GREY STREAMERS - DELLA ROBbia BLUE IN SHIELDS AT TOP OF

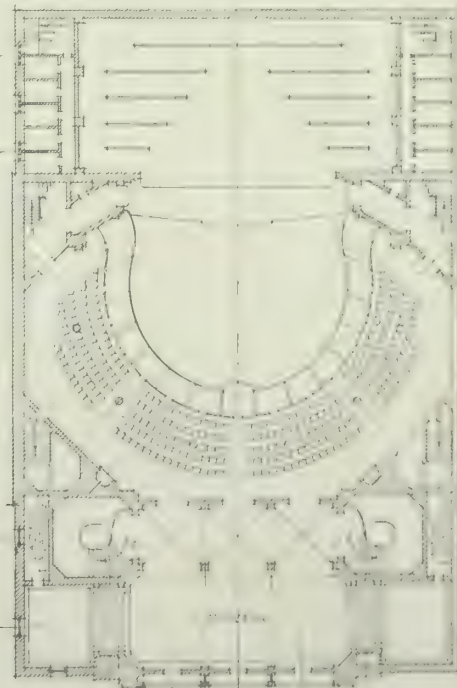
VPRIGHTS AND IN KEYS - DARKER BLUE IN SHIELDS ON THE BRACKETS - RICHLY DECORATED BAND OF BODY COLOR WITH GREEN BACKGROUND

SCALE OF ELEVATION

SCALE OF PLANS



FIRST FLOOR

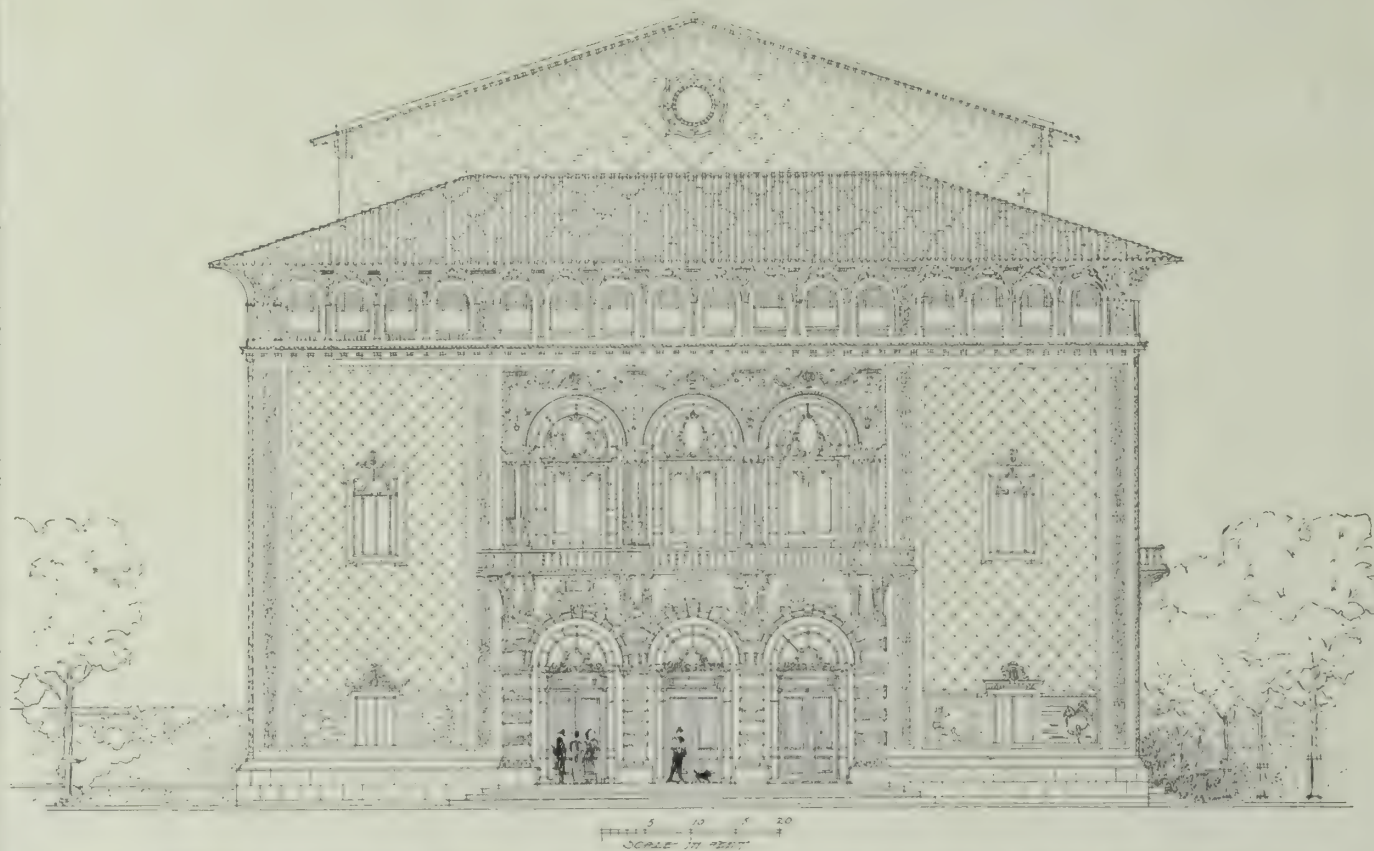


BALCONY FLOOR

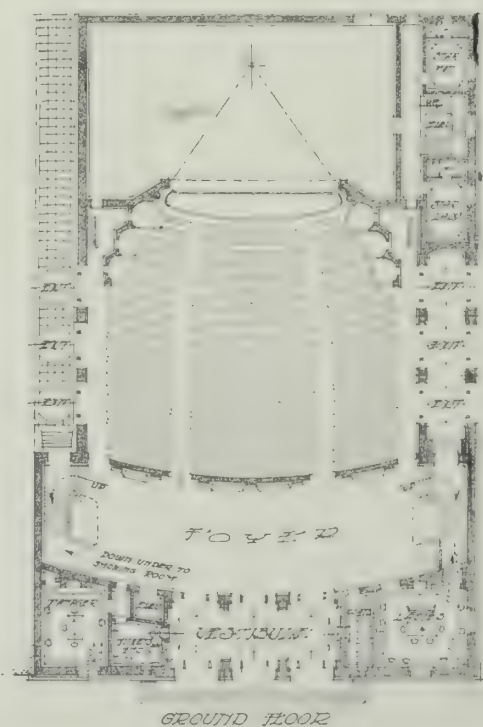
SUBMITTED BY



SUBMITTED BY HOWARD W. GERMAUN, PARIS, FRANCE.



GENERAL LIST OF MATERIALS AND COLORS. STONE - BUFF TERRAZZO OR BRICK PATTERNS UP DARK IN ORDER OR RED-DARK PIECES. ROOF - WITH RED TILES WITH PATTERNS IN LIGHTER TILES. CORNICES, COLE ETC. FIELD OF SPANDRILS BLUE WITH WHITE ORNAMENT SPOT GOLD. HALF OF BRICK GOLDEN YELLOW WITH WHITE ORNAMENT AND GREEN SPOT, SHOOTERS BROWNISH. CENTRAL MASS OF LOGGIA AND GENTILISSE ENTIRELY GENERALLY IN LIGHT AND MEDIUM BUFF TONES, STAYS OVER UPPER ARCHES DARK BLUE, RED AND WHITE WITH CORNICE OF THE ORNAMENT IN WHITE. CORNICE UNDER BALCONY LIGHT PATTERNS IN WHITE AND LIGHT BUFF WITH STAYS IN RED. CORNICE DARK BUFF. CORNICE PATTERNS OF BRICK. GENERALLY IN LIGHT BUFF TERRAZZO WITH ORNAMENT IN SLIGHTLY DARKER TONE, FIELD WITH THE DIAGONAL LINES OF BRICK OR P.C. SQUARES WITH JOINTS POINTED IN BUFF. EACH SQUARE HAVING A SURFACE TEXTURE HEAVY BUT WHITE ORNAMENT AS A SECOND FIELD OF LIGHT TERRAZZO CORNICE.

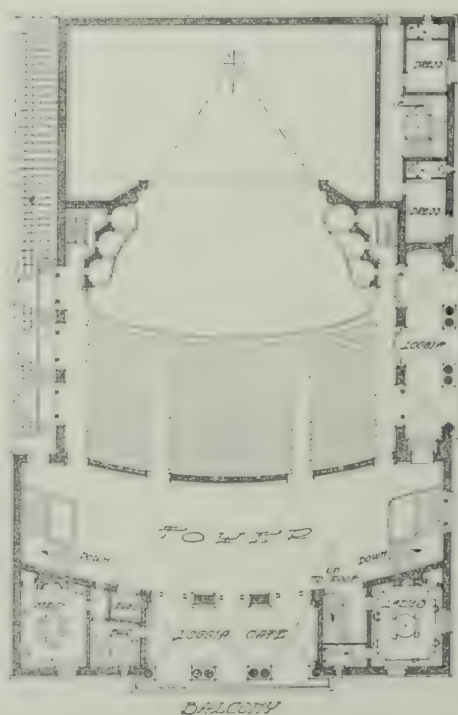


GROUND FLOOR

LOGGIA AND GENTILISSE CORNICES OF TERRAZZO CORNICE GENERALLY BLUE AS THE DOMINANT IN LOGGIA CORNICE GENTILISSE CORNICE WHITE CORNICE WITH MASS OF STAYS IN RED BRICKS AND YELLOWED BRICKS OF GENTILISSE CORNICE

NOTE: ELEVATION CONTACTS WITH CORNICE AND GREEN

SCALE IN FEET
0 10 20 40

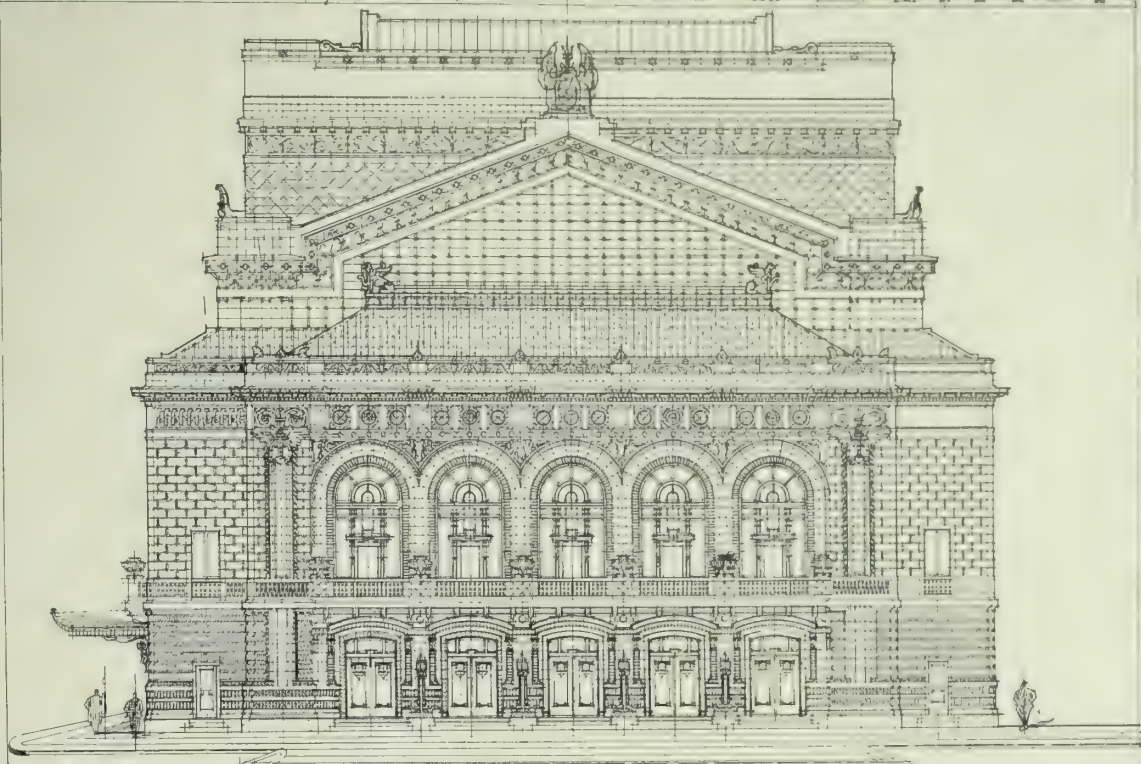


DALLORY

SUBMITTED BY F. A. COLBY, NEW YORK.

BRICKBUILDER COMPETITION

FRATHEATRE



FRATHEATRE

SEMIN
BY

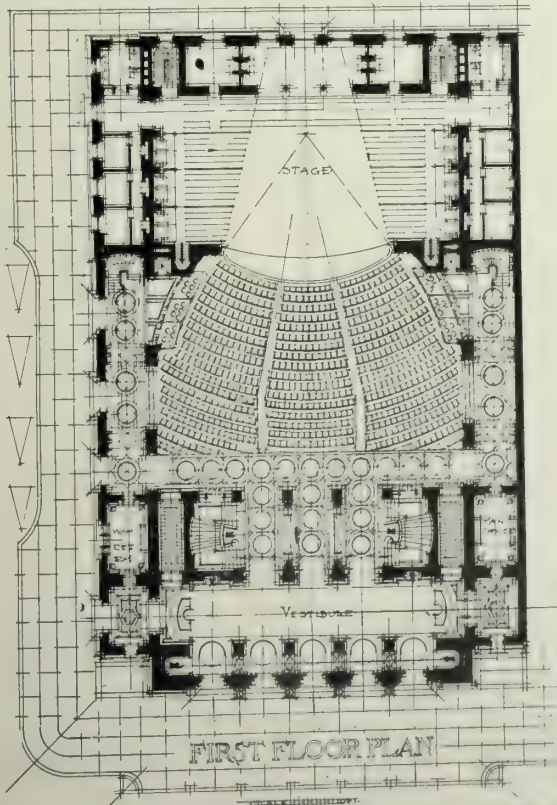
SCALE
1" = 10'



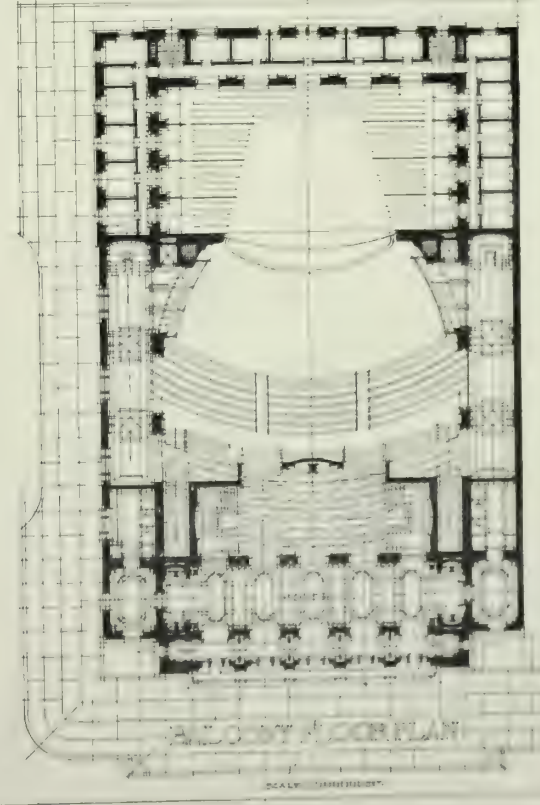
COLORS: TERRAZZO
ROOF: RED
GLAZES: GREEN
GLAZES: GREEN
GLAZES: GREEN

MAIN ELEVATION

WINGS: SURFACES: RED
WINGS: SURFACES: RED
WINGS: SURFACES: RED
WINGS: SURFACES: RED



FIRST FLOOR PLAN

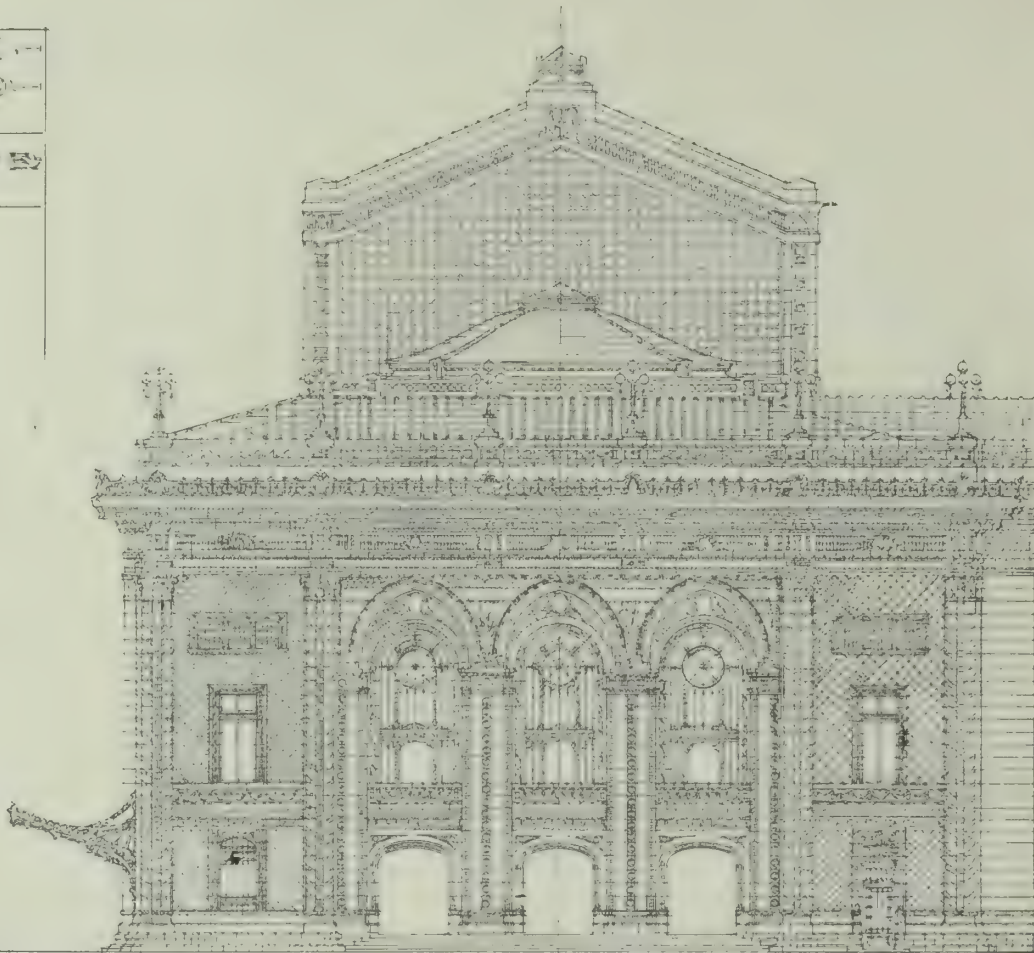


SECOND FLOOR PLAN

SUBMITTED BY CLIFFORD C. WENDEHACK, NEW YORK.

BROOKLYN
 BUILDING
 CO.,
 COMPETITION

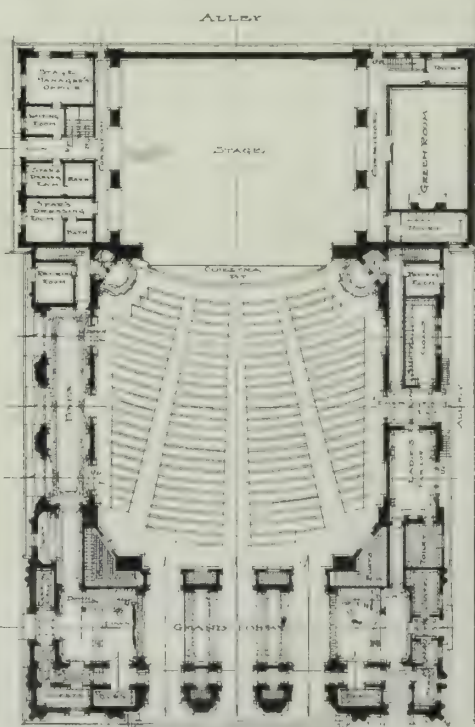
A. J. COTTA
 THEATRE



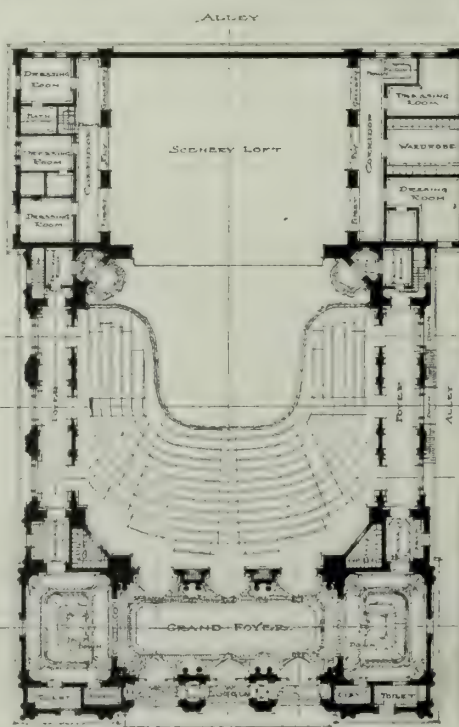
COLOR SCHEME—GENERAL BODY COLOR
 LIGHT CREAM, WITH LIGHT GREEN BACK
 GROUNDS BELOW CORNICES.
 ALL SURFACES UNGLAZED.

FRONT ELEVATION
 SCALE: 1" = 10'

CORNICES, CAPITALS, AND BALUSTRADE
 YELLOW WITH BLUE BACKGROUNDS. ROOFS
 GREEN. LOGGIA REDS AND BLUES. LOBBY
 BLUE CEILING CREAM WALLS.



FIRST FLOOR PLAN.
 SCALE: 1" = 10'



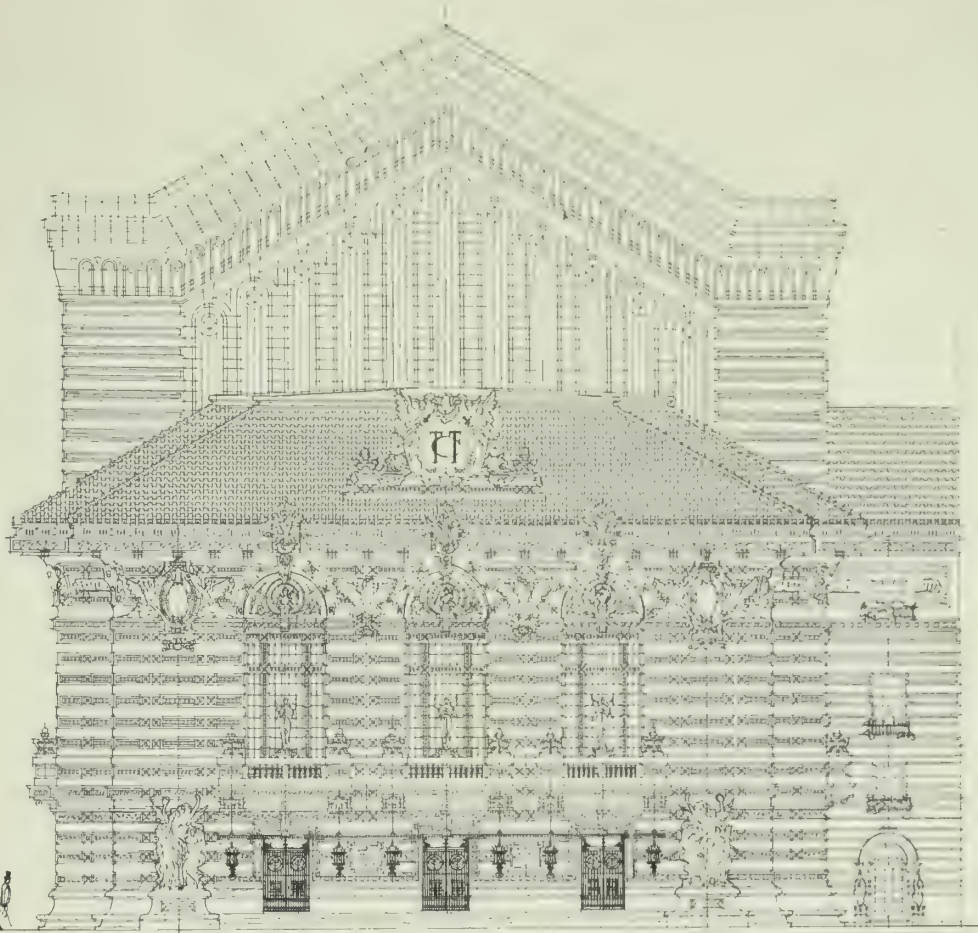
SECOND FLOOR PLAN.
 SCALE: 1" = 10'

SUBMITTED BY **W. G. HOLFORD**

SUBMITTED BY W. G. HOLFORD, BROOKLYN.

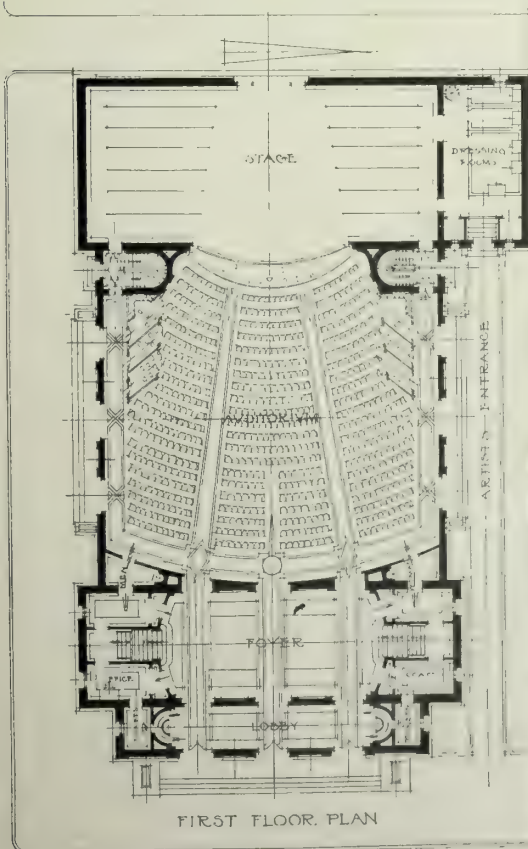
BRICK
BUILD-
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TITION
FOR
A THE-
ATRE

SUBMITTED
BY



FRONT ELEVATION

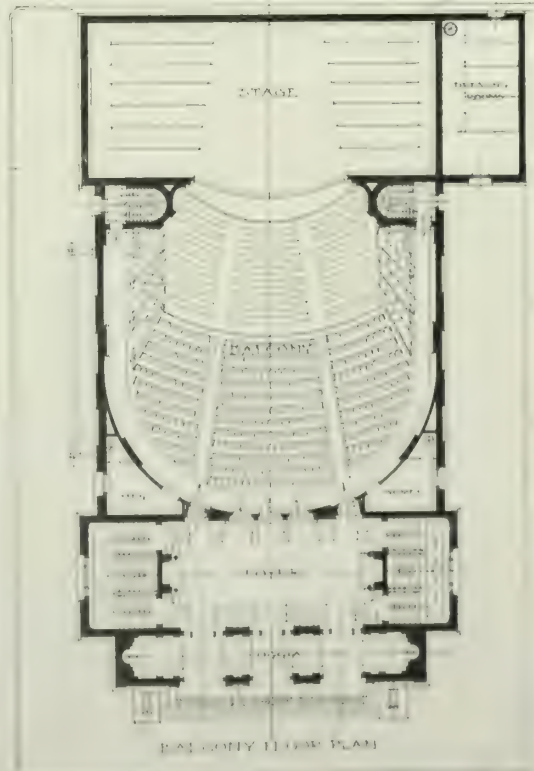
1/4" = 1' 0"



FIRST FLOOR, PLAN

MANSFIELD AVENUE

Color Scheme
Main body of
building to be
Cream, faience
ornamentation
to be Della-
Robbia greens
and yellows
on a salmon
field



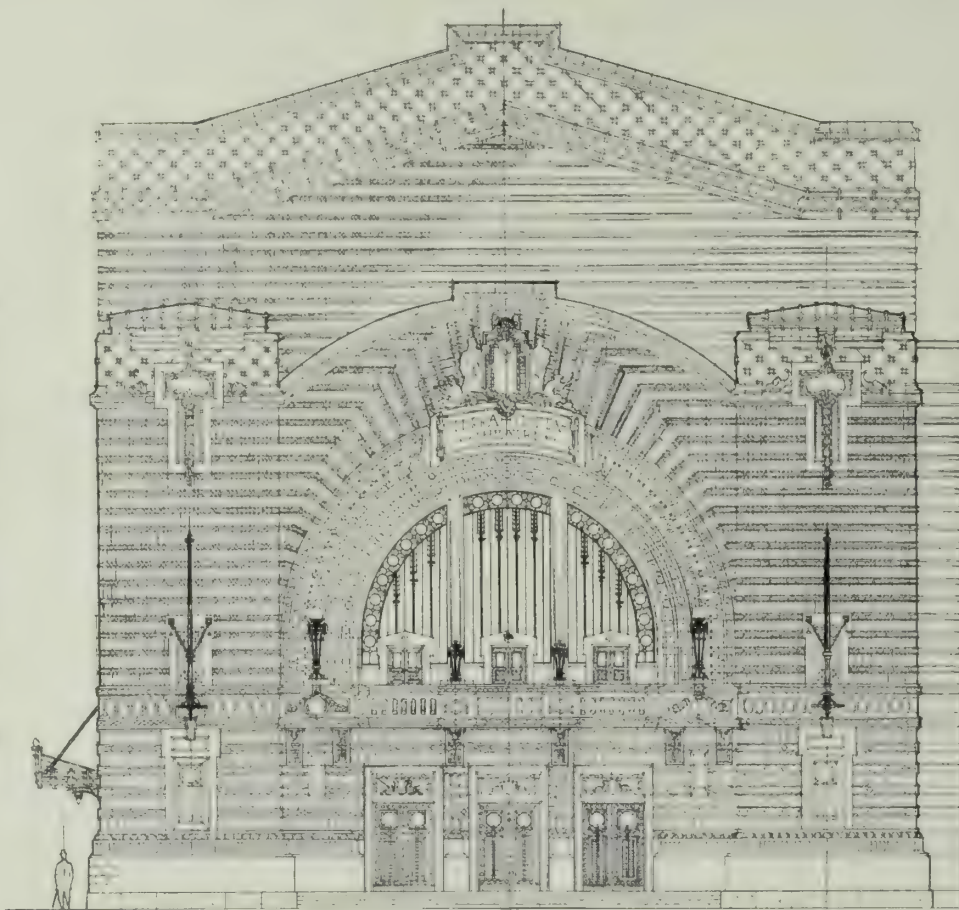
MAIN BODY FLOOR PLAN

MANSFIELD AVENUE

SUBMITTED BY STANLEY L. ROUSH, PITTSBURG, PA.

BRI
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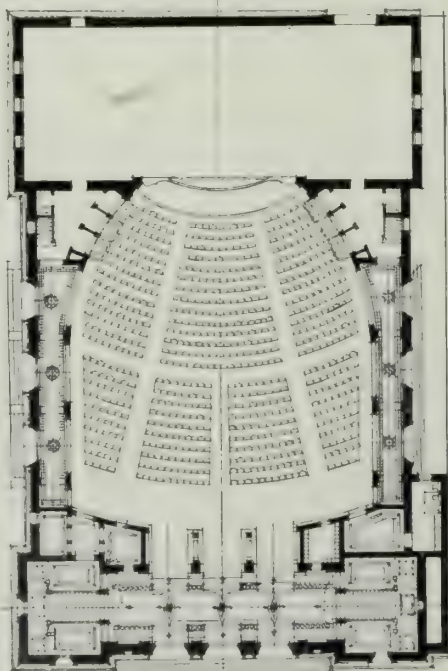
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MEGAPHONE

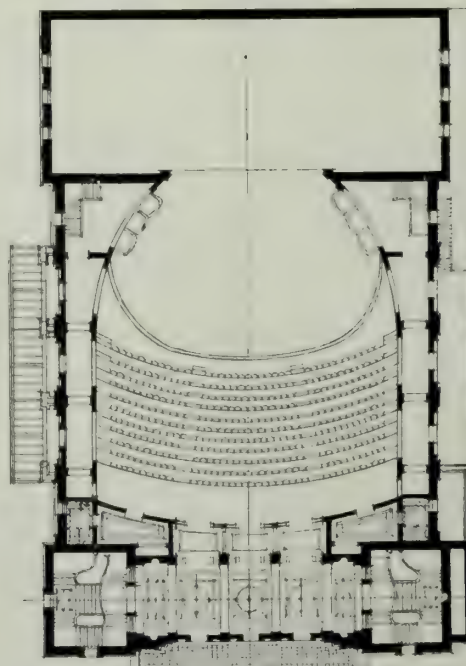
+ FRONT ELEVATION +

SCALE



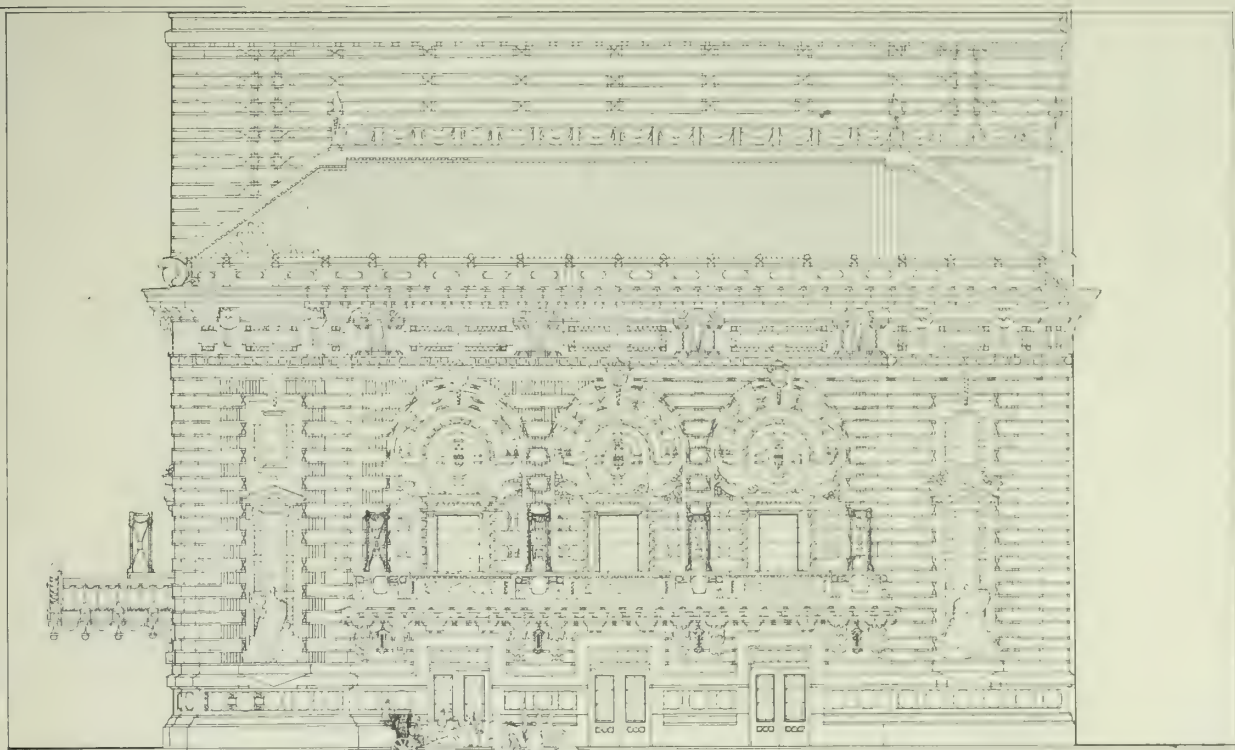
PARQUET PLAN

SCALE



BALCONY PLAN

SUBMITTED BY WILLIAM R. SCHMITT, DETROIT, MICH.

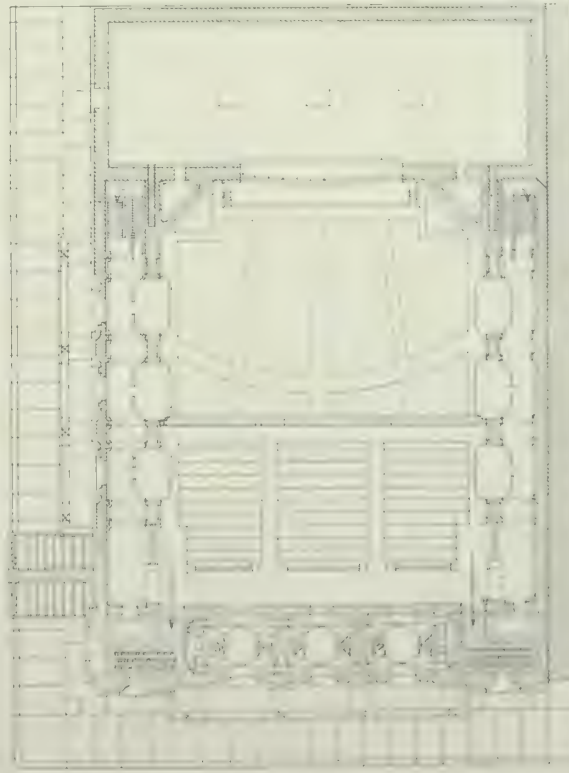
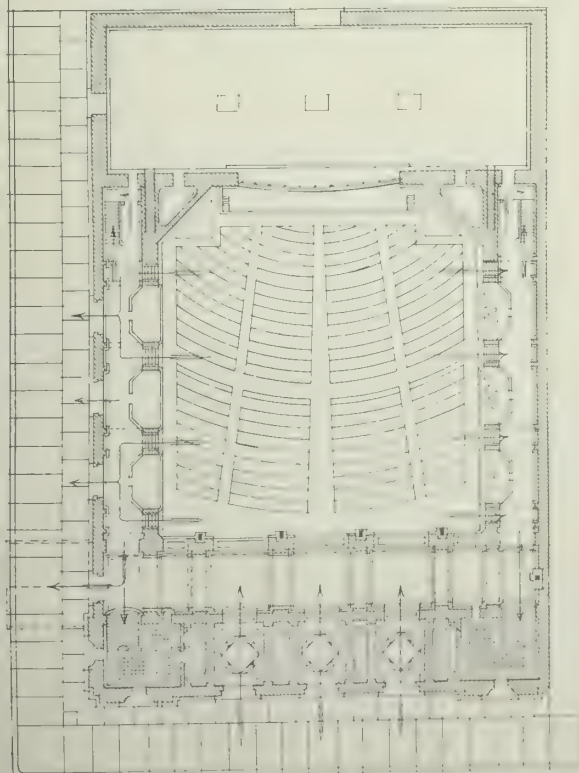


FRONT ELEVATION

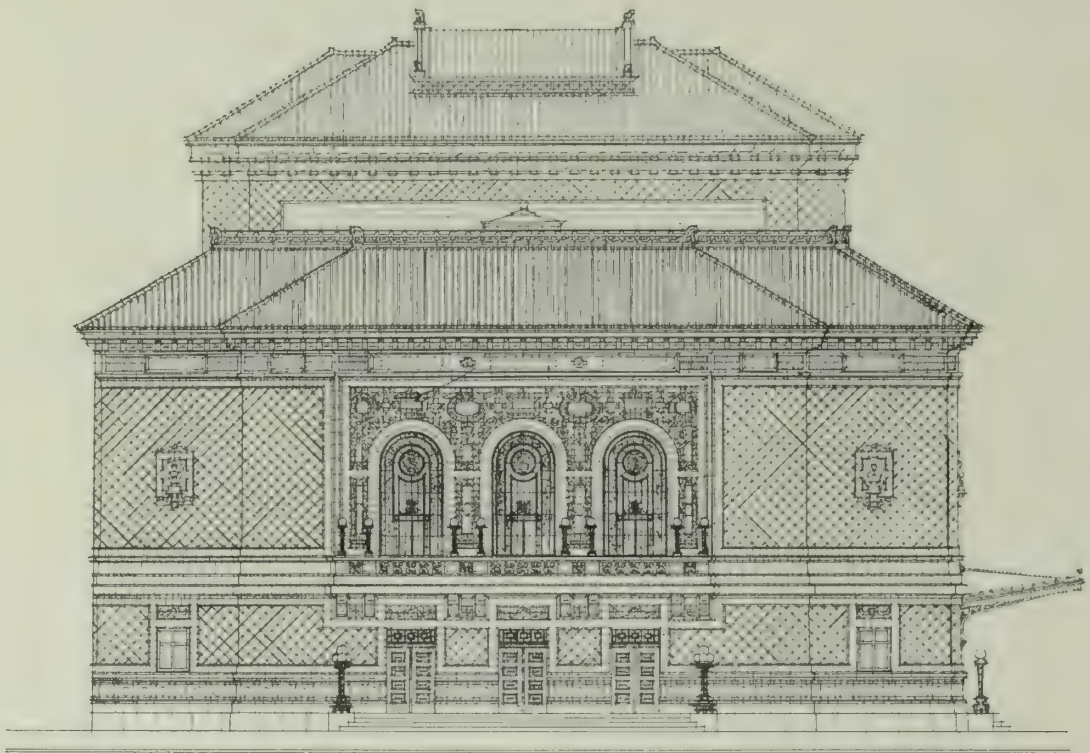
COLOR SCHEME :

LIGHT CREAM FOR BODY COLOR & RED, GREEN & BLUE FOR BACKGROUND OR WHEREVER HEAVY INDICATION OR ORNAMENTATION IS SHOWN

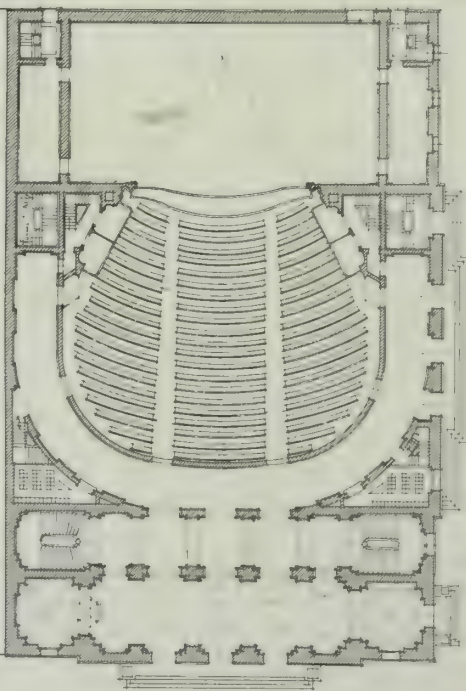
FIRST FLOOR BALCONY



SUBMITTED BY RALPH E. ABELL, ELGIN, ILL.



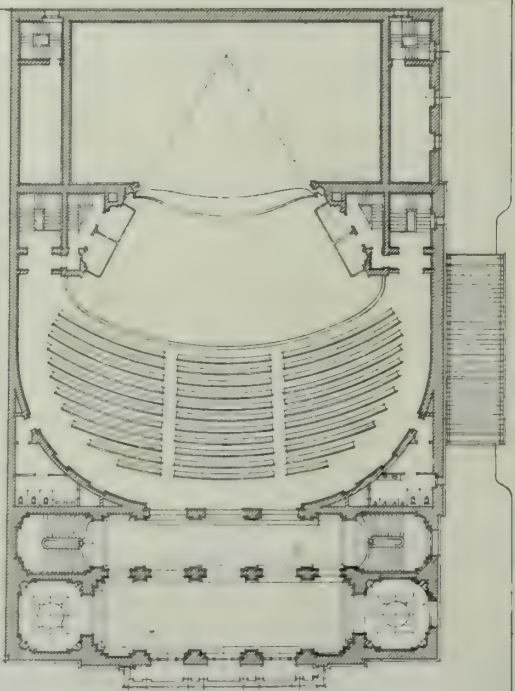
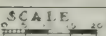
• MAIN • ELEVATION •



• FIRST • FLOOR • PLAN •

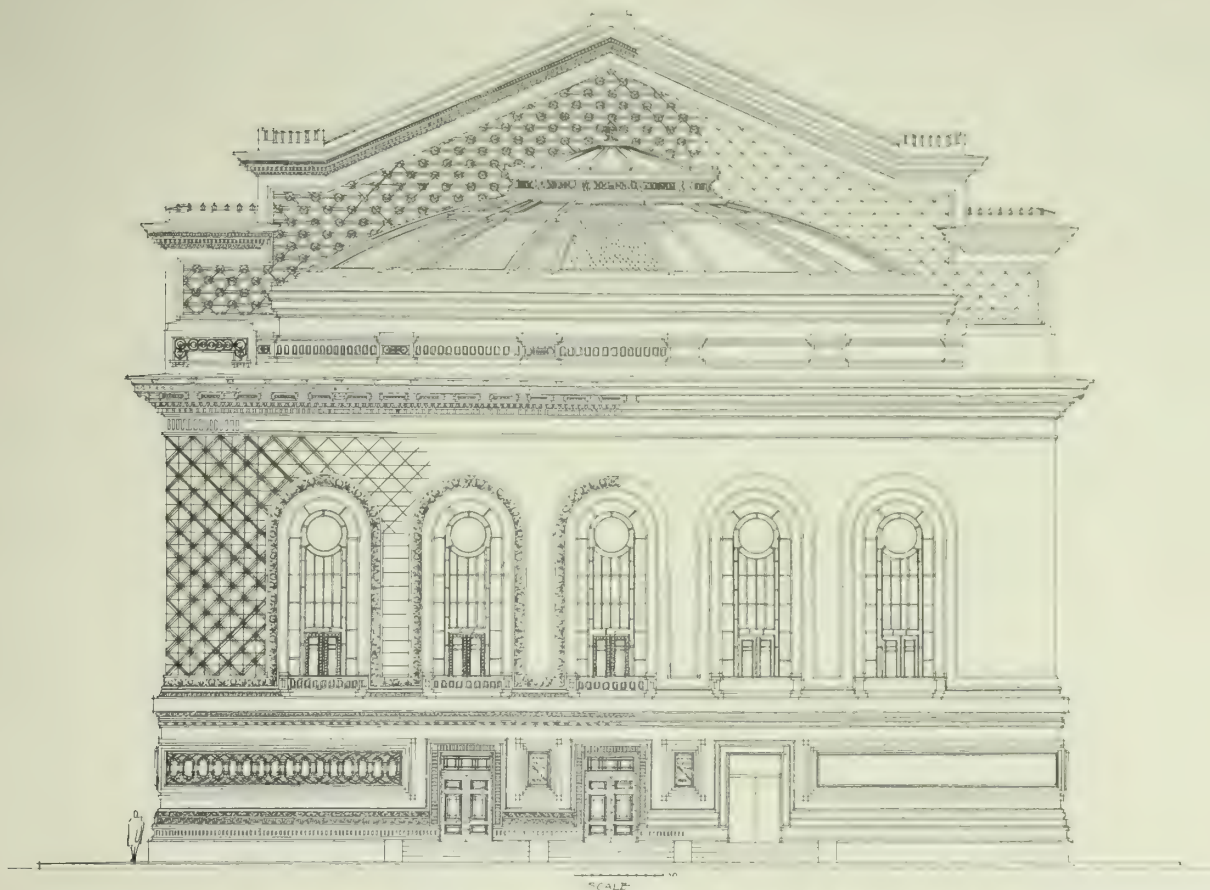
COLOR
SCHEME

ROOF GRE
ENTILE
BODY COL
OR BVFF
WITH DAR
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L COLORS



• BALCONY • FLOOR • PLAN •

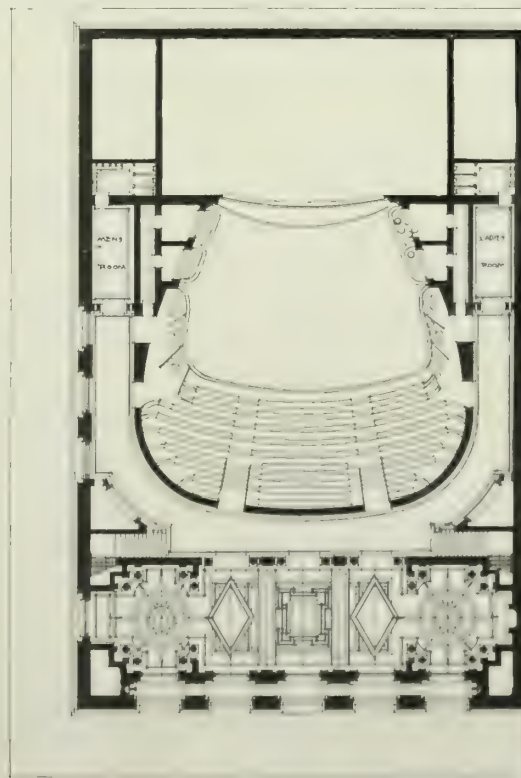
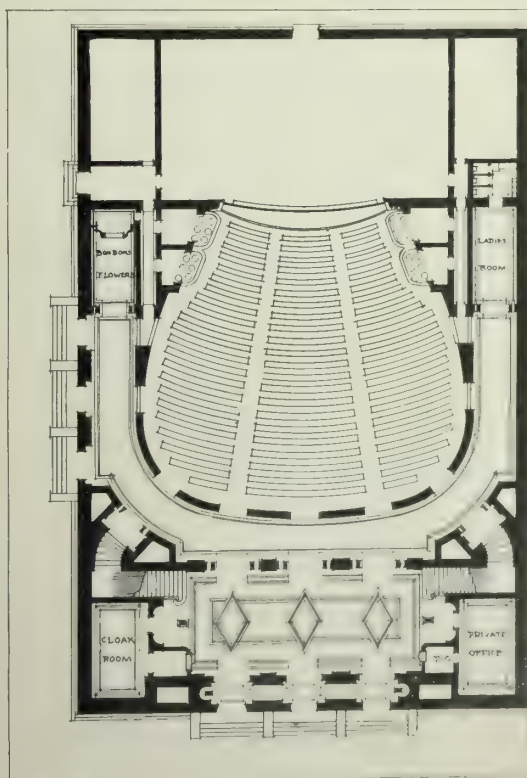
SUBMITTED BY LAURENCE H. FOWLER, BALTIMORE.



BRICKBUILDER COMPETITION FOR A THEATRE

COLOR SCHEME - CREAM, FOR GENERAL BODY COLOR - FIRST
STORY PANELLLED WORK, FRIEZE, AND DIAPER
WORK IN GABLE OLIVE GREEN, RED
TILE ROOF AND DOME -

SUBMITTED BY "PVNKO"

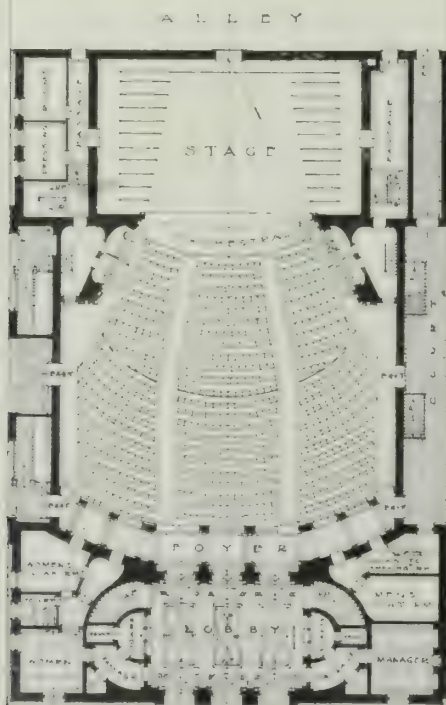


SUBMITTED BY COLISTER M. CRAIG, PHILADELPHIA.



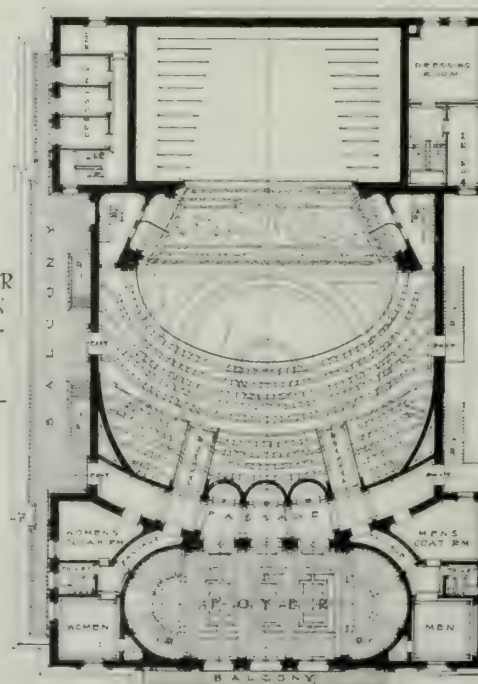
FRONT ELEVATION

THE THEATRE IS TO BE A LIGHT GRAY, BACKGROUND OF ORNAMENT 1 FT. IN THE PRIMARY AND 1/2 IN. IN VARIOUS SHAPES. THE FLOOR IS TO HAVE BACK-ROUND IN BLUE AND GREEN WITH FIGURES IN WARM TONES.



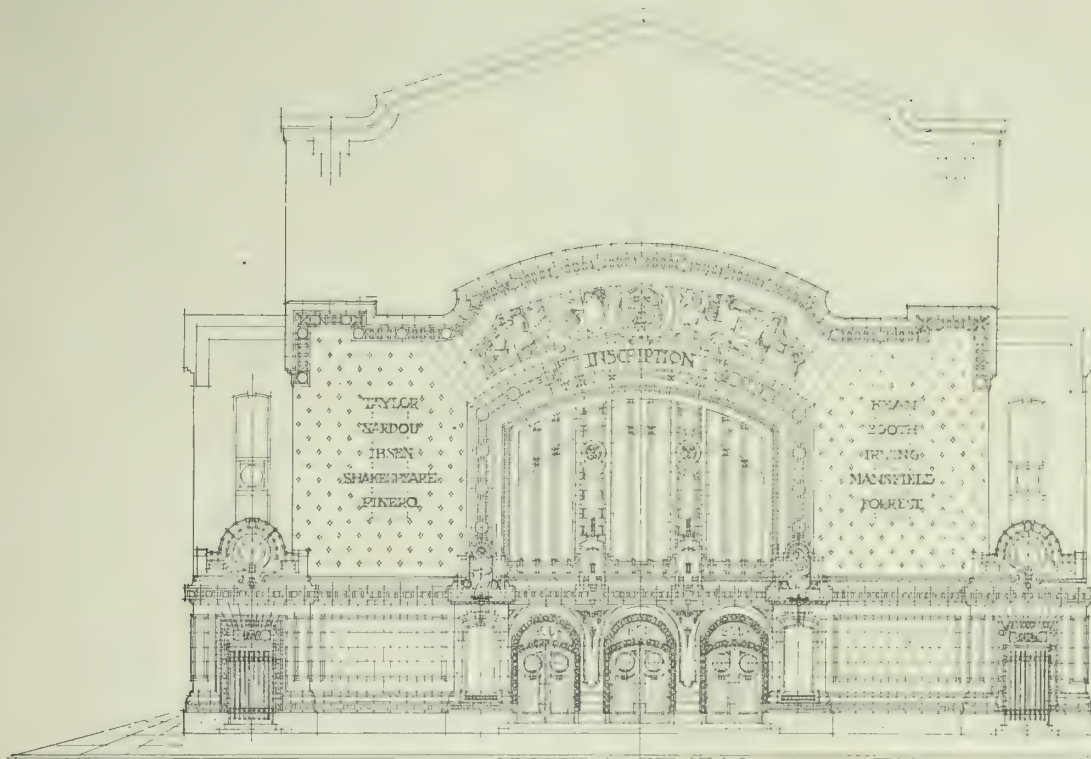
MAIN FLOOR PLAN

BRICKBUILDER
COMPETITION
FOR A THEA-
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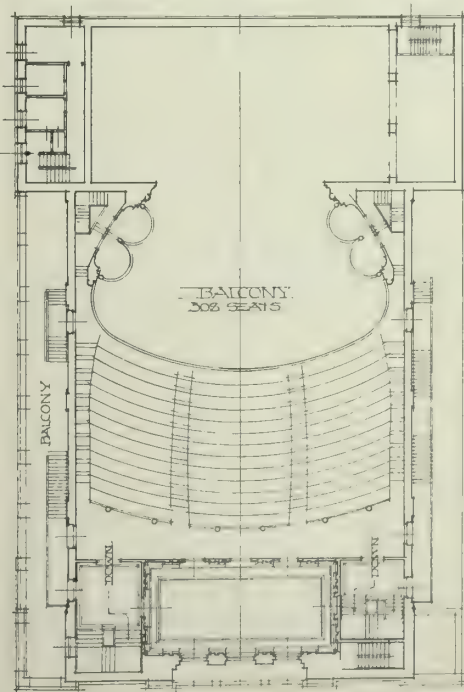
BALCONY FLOOR PLAN

SUBMITTED BY J. N. WATSON, ST. LOUIS, MO.



FRONT ELEVATION

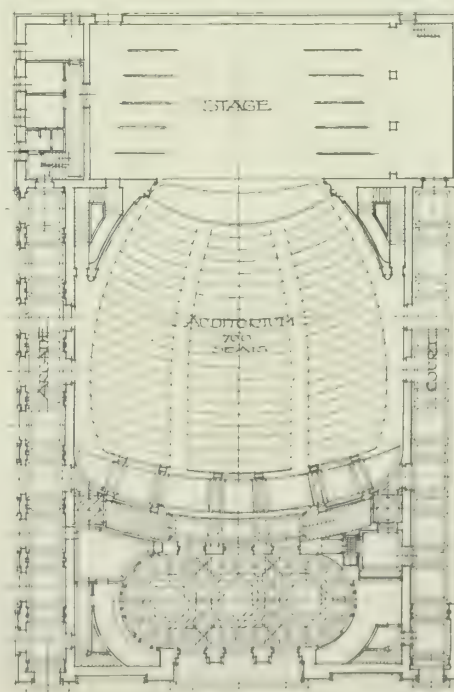
SCALE



BALCONY PLAN

COLOR SCHEME

LIGHT BLUE
FOR A BODY
COLOR
DIAMONDS
DOOR ORNAMENT
TO BE OF DARK
BLUE
BELTS, BASE
TOPPING, PANEL
AND WINDOW
TO BE A BLUE
LIGHT GREEN
RED AND PINK
BUFF TASS
TICKET DETAIL



MAIN FLOOR PLAN

SCALE 45'-0"

SUBMITTED BY T.C.

SUBMITTED BY MALCOLM B. HARDING AND STOYAN N. KARASTOYANOFF, NEW YORK.



ST. AMBROSE R. C. CHURCH, TOMPKINS AVE., BROOKLYN.

Geo. H. Streeton, Architect.

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THE BRICKBUILDER

VOLUME XVII

MARCH 1908

NUMBER 3

PUBLISHED MONTHLY BY ROGERS & MANSON

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Brick	III	Roofing Tile	IV

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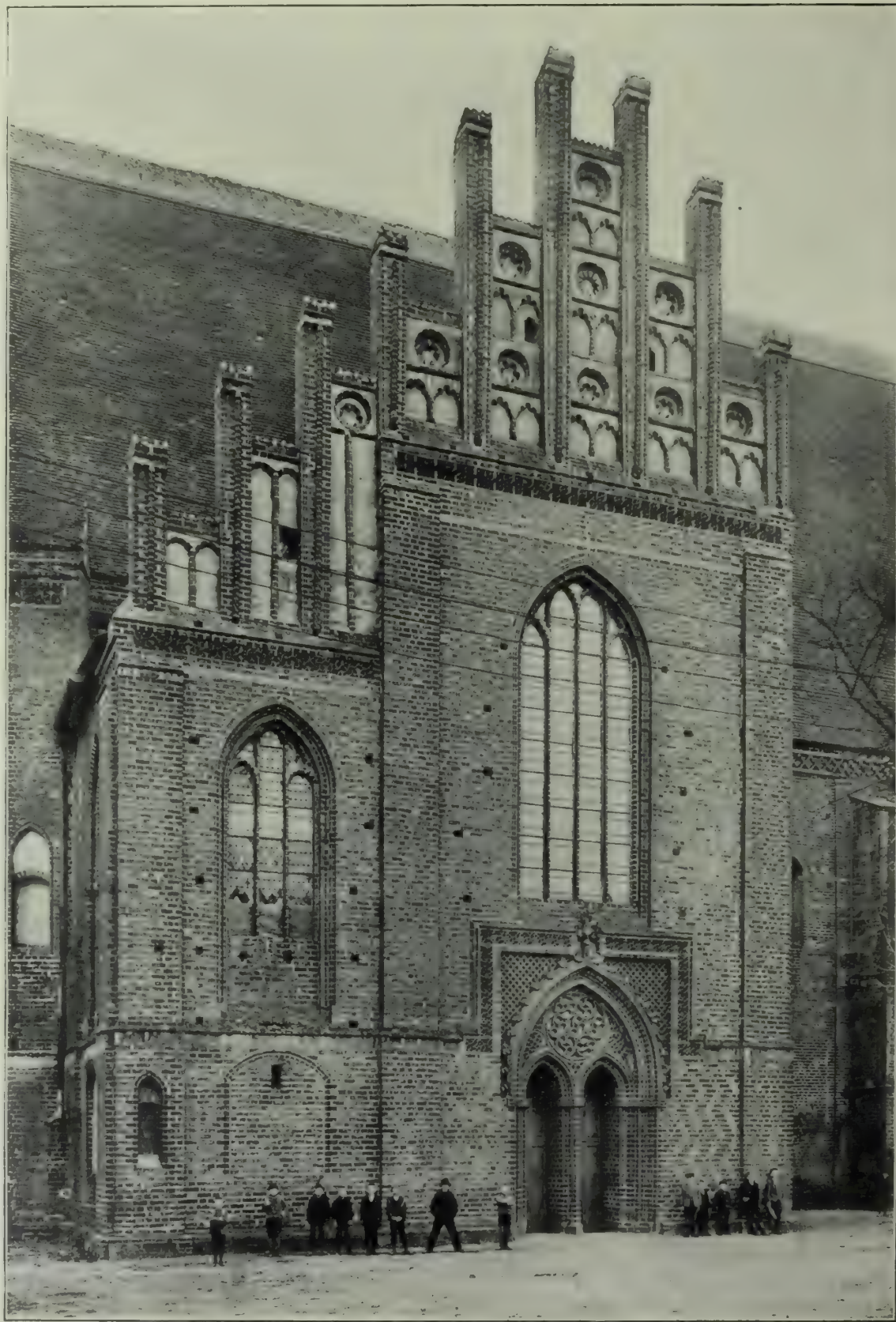
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SOUTH TRANSEPT, CHURCH OF ST. STEPHAN, TANGERMÜNDE, GERMANY.

THE BRICKVILDER

VOL. 17 NO. 3

DEVOTED TO THE INTERESTS OF ARCHITECTURE IN MATERIALS OF CLAY

MARCH 1908.

The American Theater — IV.

SIGHT LINES.

BY CLARENCE H. BLACKALL

THE essential condition, which rightly takes precedence over every other consideration in a modern theater, is that every spectator shall have an uninterrupted view of what is being done upon the stage. There is no excuse for the neglect of this condition, and its importance can hardly be too strongly emphasized, for if the sight lines are faulty, no amount of careful planning otherwise, or of architectural development or adornment, can make the theater any more than a partial success, which is equivalent to a failure. Bad acoustics can be tolerated in these days, when with most shows it really matters so little what is said on the

how variously it has been worked out, and how often it just fails of being a success. It has been the practice of the writer to work out the sight lines first on paper, then to have a scale model constructed, including the curtain opening, the shape of the parquet, and the main constructive cantilevers or girders of the bal-

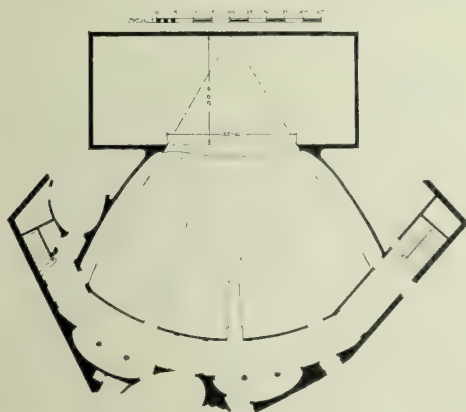


FIG. 1. TYPICAL PLAN.

stage and imperfect heating and ventilation can be remedied after a building has been occupied, but the sight lines are fundamental. They are the very first factors which must be absolutely established in the design of the auditorium, and once incorporated into the building, it becomes practically impossible to change them. It behooves the architect, therefore, to exercise the utmost care in fixing them, to check them constantly on the drawings and during the progress of construction, and to be sure of his facts and of the results. The problem seems, after all, like an easy one, but one has only to compare a dozen or more recent theaters to appreciate

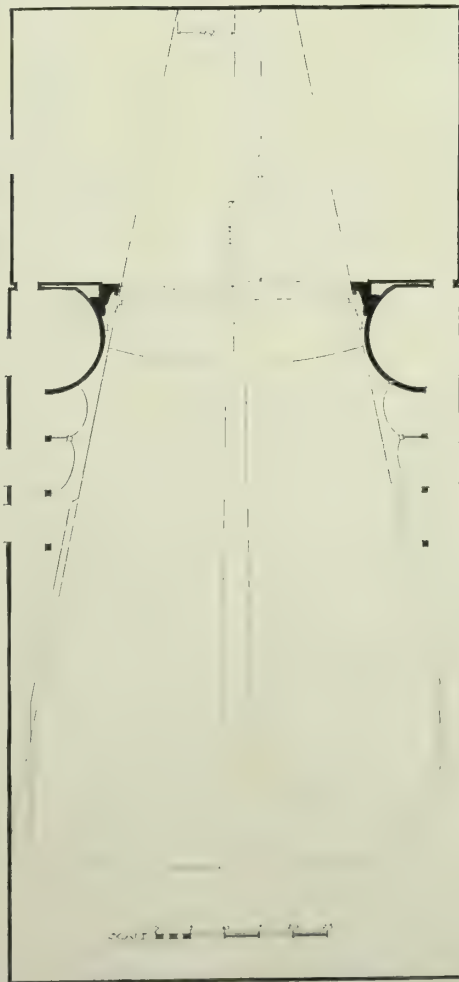


FIG. 3. CHELSEA THEATER.

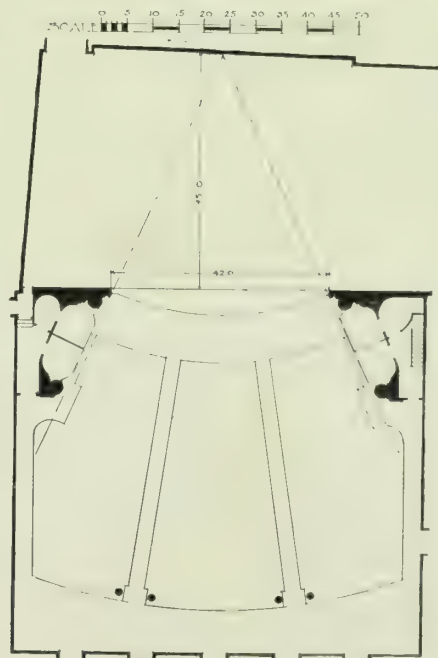


FIG. 2. COLONIAL THEATER, BOSTON.

cony and gallery, the latter being made in tin or galvanized iron. With this constructive model the sight lines are thoroughly tested for every portion of the house, the framing being raised or depressed until just the right lines are assured. This model serves as a basis for grades on the shop drawings of the steel work, and can then be clothed in wax, clay or plaster, in studying the architectural design of the interior. And working in this manner it has often been found that the lines as developed on paper had to be materially modified. The sight lines are really the key to the whole design.

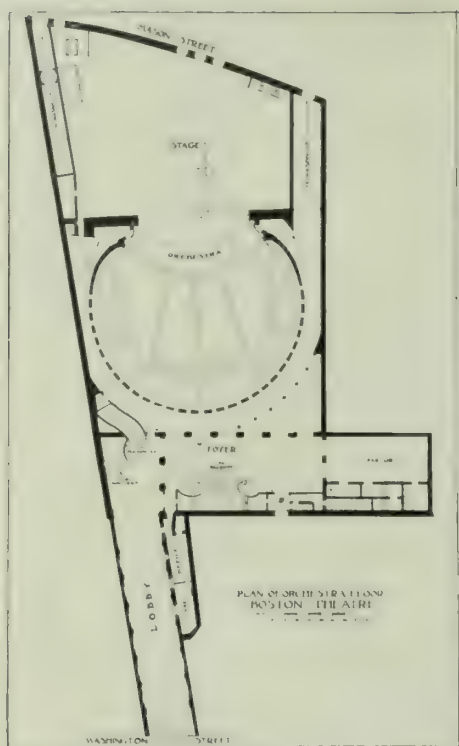


FIG. 4. BOSTON THEATER.

least 30 feet to the rear of the curtain line (Fig. 1); for the ordinary run of theaters, this center should be at least forty-five feet back of the curtain line (Fig. 2), while for grand opera or large, spectacular productions, the lines should be such that from the most extreme side seat a spectator can see at least one-half of the width of the rear of the stage (Fig. 3). As these limiting lines must be applied to each division of the house, it becomes extremely difficult to plan for boxes on the sides with good sight, and only by sacrificing good seats on the parquet are good boxes possible. Box seats are, accordingly, usually the poorest in the house.

It will at once be seen how much the efficient seating capacity of the house is modified by the width of the curtain opening. This width varies from a minimum of twenty-five feet for a vaudeville house to as much as seventy feet, as in the Boston Theater (Fig. 4), and is, at times, affected by the permissible depth of the auditorium and by the width to which the lines can fan out on each side. With sight lines which would be theoretically perfect the bounding lines should be parallel to the center line so that from the extreme side seat a spectator could see the whole depth of the stage the whole width of the curtain opening, but as scenery is invariably set drawing in towards the rear, and as most of the action is confined to the central quarter of the stage, such extreme lines are not necessary, though they have been followed in a few cases in this country, and are often found for the parquet seats only of the theaters in Europe.

First, in plan. Every seat must lie within limiting lines, touching the jambs of the curtain opening and starting from a common center on the longitudinal axis of the hall. If the theater is to be used for light drama or vaudeville, this center should be at

The only practical reason for arranging the seats in curves is to make it a trifle easier to look straight at the front center of the stage. They could perfectly well be put in straight rows parallel to the curtain, as was done quite successfully in the Studebaker Theatre, Chicago. An amphitheatrical arrangement of the seats is preferred, however, on account of its presenting a more compact appearance, and seeming to give a more intimate sense of touch between the actor and the audience, a very desirable condition. This can be carried too far, however, as is usually the case with the European theaters, where the balcony and galleries are cut away back in the center and carried out on the sides in the familiar horseshoe shape, causing a considerable portion of the audience to face each other instead of the stage, and removing the best seats far from the stage. This arrangement has never found favor with us. The illustrations (5, 6, 7, 8, 9, 10)

show some of the most successful balcony lines. The front of gallery is usually cut back more and struck with a lesser radius than the balcony, but in none of the recent theaters is the gallery center in advance of the certain line, more generally being kept to the rear thereof, so as to give flatter curves.

Second, in section. In the ancient amphitheatres the rise of the platforms was so sharp that each spectator could see entirely over the head of the one in front of him. This would be manifestly impractical in a modern hall, and even to so graduate the slope that each spectator would be able to have his eyes even above the level of the head in front of him would speedily bring the rise in the twenty

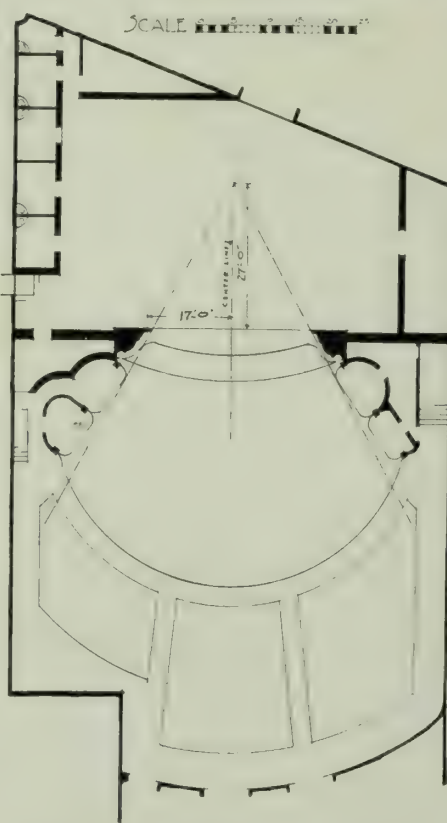


FIG. 5. KEITH'S THEATER, BOSTON.

to twenty-four rows of the average theater so high that galleries would be impractical. A compromise is therefore made. The seats are seldom directly in front of each other in plan. In fact, the aisles are generally deliberately planned so that the seats would be more or

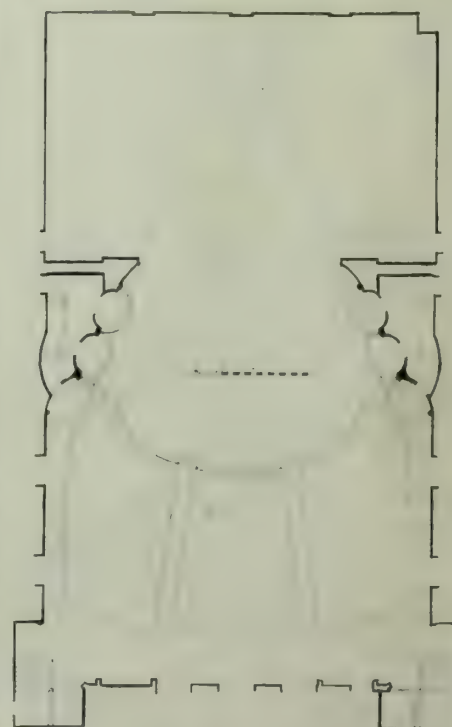
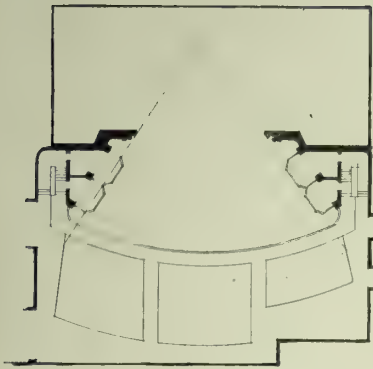


FIG. 6. ILLINOIS THEATER, CHICAGO.

FIG. 7. STUYVESANT THEATER,
NEW YORK.

less staggered. It is assumed that one can ordinarily look between the heads of at least two rows in front of them. Since the theater hat has disappeared this assumption accords very well with the fact and indeed it is not at all unsafe to assume that one can see between the heads for three rows in front of him. Consequently, if the steppings are so arranged that every fourth row is raised sufficiently to give a clear view over the top of the fourth man's head, the sight lines could be called good ones. It is also not enough to give merely a view of a person standing on the stage. In these days of dancing and stage effects, the feet of the actresses are quite prominent and accordingly the sight lines are taken from the edge of the apron. The difference between the level of the apron and the level of the first row of seats is best taken at three feet. It is sometimes made six inches more, but three feet gives a better line, especially as the hood which

covers the footlights rises to a height of about five inches above the level of the stage floor. The eye of a person seated is generally about four feet above the floor. By laying out successive heights, as shown by the diagram (Fig. 11), and drawing the sight lines, a curve is worked out which gives a rise for twenty

rows of seats of six feet. To determine the sight lines for the balcony, a line is drawn from the eye of a person seated in the rearmost seat of the orchestra to a point on the curtain line twenty feet above the stage. No portion of the balcony soffit must project within this line. Twenty feet gives an uninterrupted view of a high set scene. Where space is very restricted, this height can be reduced to eighteen feet, but twenty is better. For the lines of the steppings of the balcony the same process can be followed as in the orchestra, but it has been found that a very close approximation would be to make the tangent to the edges of the risers center on a point four feet below the top of the stage at the center. Then to determine the soffit of the gallery a line is drawn from the eye of a person seated at the rearmost row of the balcony to a

point twenty feet above the stage at the rear, and all of the balcony soffit must fall outside of this line. Similarly a tangent for the edges of the gallery risers is drawn from the point four feet below the front of the stage.

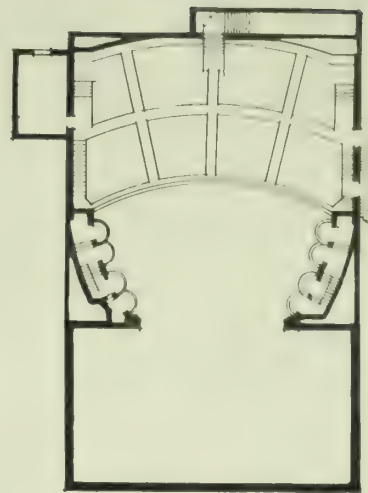
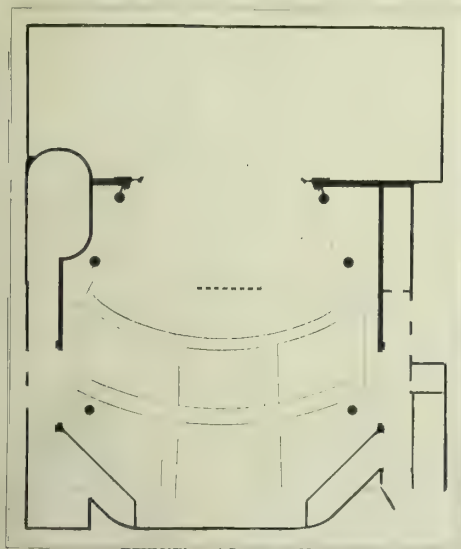
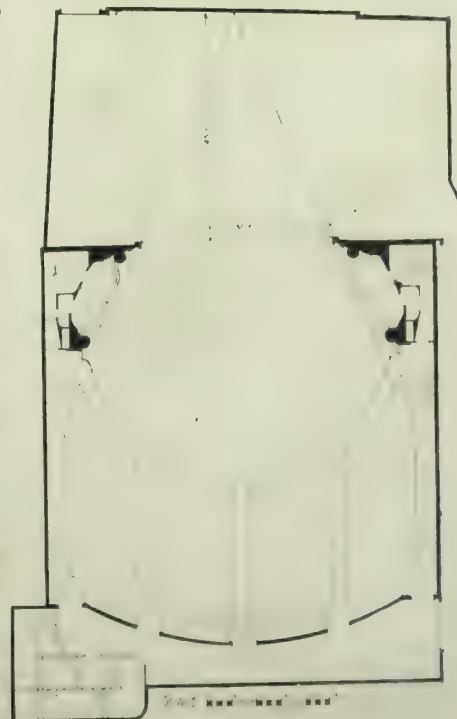
In this manner the lines are established for the balcony and gallery along the center line of the house. If the seats are in rows parallel to the curtain, each row can be made horizontal, but when the seats are on a curve in plan, the rows must pitch

sidewise in order to preserve proper sight lines, the amount of pitch being determined by working out a section along the limiting side line of the plan. On this side line the rearmost row of seats can be kept at same level as on the center, but the front row must be dropped enough to give clear sight on the stage floor at the curtain line on the side of the curtain opening. This cuts down the height at curtain line visible from the extreme side seat under the balcony, which is usually unavoidable, but which is in accordance with the usual practice so long as this height is not reduced below twelve feet as against twenty feet on the center line. Hence it will be seen that with balcony curve of short radius, the sight lines become difficult of arrangement, and with a horseshoe shape are impossible. European balconies generally have thoroughly bad side sight lines, and in the case of the Paris opera, one can not see the stage at all from the extreme seats of the side gallery.

The diagrams (12, 13, 14, 15, 16, 17) will show the varying ways in which the sight lines have been worked out in section.

The dimensions figured on the illustrations are only approximate, being worked out from small scale drawings intended to give only general relations of parts.

There are a few other things to consider in connection with sight lines. In the desire to accommodate the greatest number of people

FIG. 10. BALCONY, OPERA HOUSE,
INDIANAPOLIS.FIG. 8. BALCONY, MAJESTIC THEATER,
NEW YORK.FIG. 9. BALCONY, COLONIAL THEATER,
BOSTON.

in the least space, and with the feeling that because the gallery seats are cheaper than the orchestra therefore the gallery seats need not have as much consideration, many theaters have been planned with the gallery carried back so far and so high that the topmost row was considerably above the top of the curtain opening.

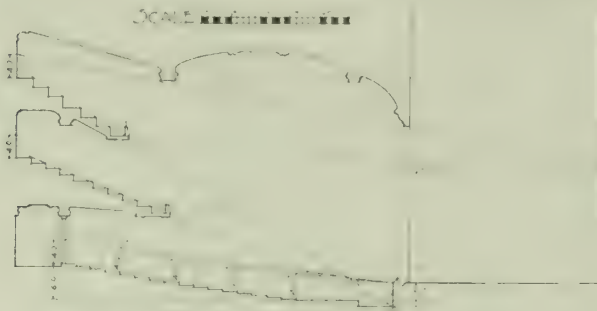


FIG. 11. TYPICAL SECTION.

This is a thoroughly vicious arrangement and in no theater should any seats ever be carried as high even as the top of the proscenium opening. The curtain opening is generally made not over thirty-five feet. Consequently in a well-planned theater no seat in any part of the gallery should be more than thirty-five feet above the stage level and should be as much lower as the greed of the manager and the size of the lot will permit.

It will be seen that the sight lines of a theater call for a very considerable degree of expert knowledge, as the different factors involved are so closely correlated that no one can be considered alone, and even a slight change in one necessitates change in all.

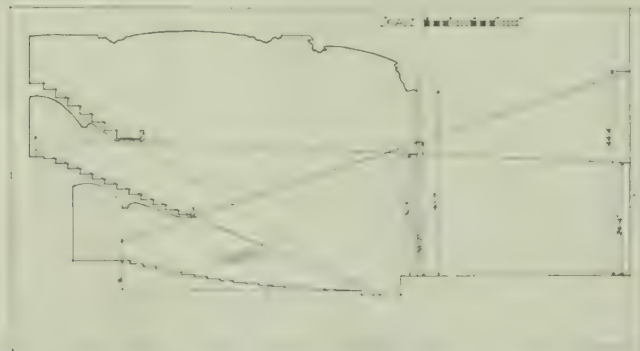


FIG. 12. SECTION, COLONIAL THEATER, BOSTON.

ACOUSTICS is the one baffling problem which has so far set at naught scientific research. There has been some most excellent work done by such investigators as Professor Sabine, of Harvard College, who has analyzed results most convincingly, and who has been able to reduce the results of his experiments to definite coefficients and formulæ, but when it comes to determining in advance what the acoustic properties of a given hall shall be, the only guide is experience, and even that is sadly unreliable from causes for which we are often wholly at loss to account. If there is to-day any workable theory for determining acoustic properties of a hall of audience it has yet to be successfully applied in practice, and the most that we can do is to draw a few lessons from observed facts, and even these must be applied with fear and trembling if one departs at all from the beaten track of safe practice. Having found that one hall is excellent acoustically, the only sure way

is to exactly copy that hall, line for line, and in every dimension, and even then sometimes an unexpected combination seems to set all our plans at naught. Sound is not propagated in straight lines nor in straight waves, but apparently in spherical undulations, which are so extremely tenuous as to be easily modified or deflected by slight obstacles. We have not yet reached even a satisfactory starting point for the theory. Professor Sabine's experiments appear to have been conducted with a view to diminish the residual effect of sound, to absorb the waves, rather than to intensify them. Other experimenters have hypothesized that beyond certain distances from a focal center, all surfaces of walls, etc., must be made absorbent, while surfaces near at hand should be reflective of sound. But in a theater

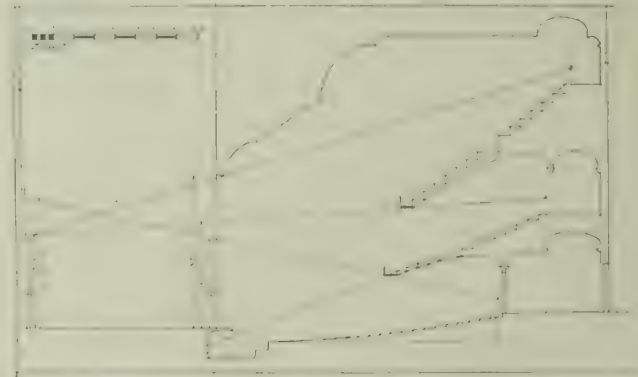


FIG. 13. SECTION, NIXON THEATER, PITTSBURG.

there is no focus from which to reckon. Action, speech and music may start from any point of the stage and even at varying levels above the same, while there is the added complication that the music in the orchestra pit must be effective to both the audience on one side and the artists on the other.

There are, however, a few things which we know by experience. Of recent years, there have been built a number of open-air auditoriums, which have been used quite extensively throughout the West, in connection with the various Chautauquan movements. These are simply huge wooden shelters on a circular or square plan, built without any sides, open to the air and with concentric rows of seats. In some cases, audiences as

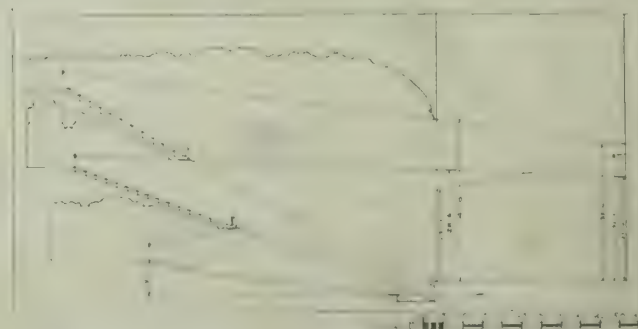


FIG. 14. SECTION, ACADEMY OF MUSIC, BROOKLYN.

high as four and five thousand have been accommodated under perfect acoustic conditions, and it has sometimes been found that a shelter of this sort, which is perfectly good while the sides are open to the air, becomes bad acoustically when the sides are closed in, quite irrespective of the material of closure. Again, it

seems to be a fact that spoken and musical sounds will travel with less interference across a moving current of air than they will travel with the current. Consequently, when the fresh air is introduced, so as to ascend in vertical columns through the house, the effect of the ventilation, instead of carrying the sounds away from the audience, seems to be to render them more distinctly audible. In the writer's experience the most fertile cause of trouble in an auditorium seems to rise from inequalities of temperature. The sound waves, passing from a warm through to a cold strata, seem more likely to

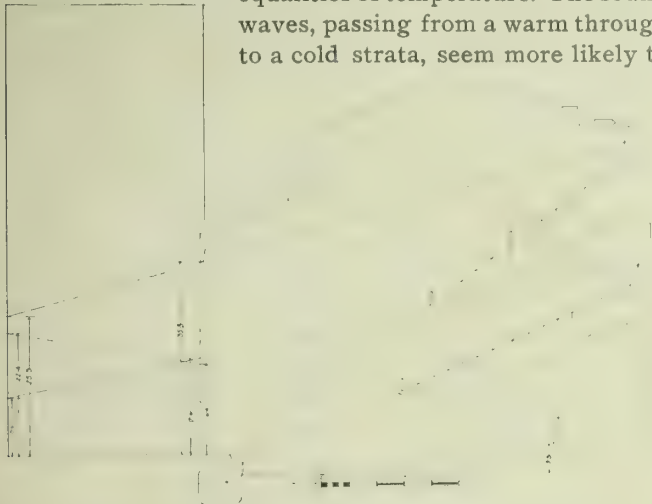


FIG. 15. SECTION, MAJESTIC THEATER, NEW YORK.

be confused than when the temperature is maintained at an even degree throughout. Consequently, the ideal hall, on this assumption, would be one in which there are no outside walls directly exposed to the weather, but in which the auditorium is entirely surrounded by a larger building on all sides, so that there shall be no cold walls or ceilings. It has been noted also that an auditorium with a domed ceiling is quite apt to have bad acoustic

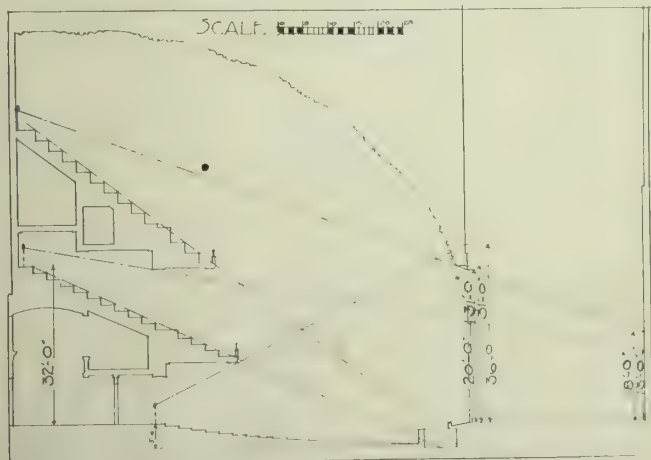


FIG. 16. SECTION, MAJESTIC THEATER, BOSTON.

properties; that, on the other hand, a hall with a flat ceiling seldom gives any trouble. Against this, however, is the fact that a plain ceiling unbroken by beams may affect unpleasantly the sound. The hall which has the reputation of being the best acoustically, in this country, is the Sanders Theater, of Harvard University, which has an open, Gothic, wooden ceiling and has the arrangement in plan of an amphitheater. Again, quite aside from the question of arrangement or absorption, there is the question of timbre, the quality of sound.

One hall will be very easy to speak in, and the smallest modulations of voice seem to reach each spectator, while in another, everything can be heard with perfect ease

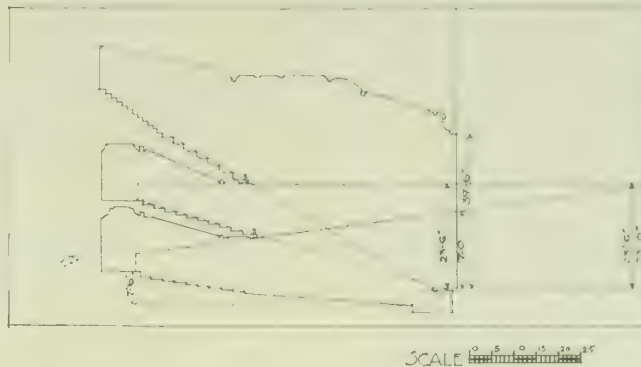


FIG. 17. SECTION, KEITH'S THEATER, BOSTON.

but the sounds are not soft or pleasing. The problem, in fact, is a wholly indeterminate one, and conclusions cannot be supported by logical reasoning, but only by a sense of measuring what has come out well in various halls, and trying to combine different features into what might be termed an ideal auditorium. In such an auditorium, measured by the writer's experience, there would be a carpet on the entire orchestra floor throughout. The floor of the orchestra pit, where the musicians sit, would be made hollow with a half-inch, thoroughly seasoned upper floor, furred off from the under floor like a sounding board. The ceiling would be generally flat, but would be broken up a good deal by projecting beams. The walls on the other hand, would be kept quite plain beyond the proscenium front, broken, if at all, only by very shallow pilasters. The drapery about the boxes would be reduced to a minimum and there would be no drapery or carpeting in galleries, except the strip of carpeting down the aisles. Such an arrangement has repeatedly been used, coupled, of course, with uniformity of temperature and evenness of ventilation, and has always given excellent results.

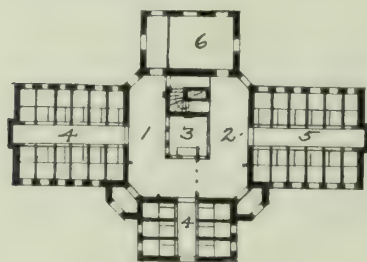
Various schemes have been devised to improve acoustic properties and to insure special results. The megaphone type, in which the lines of the plenum are carried out through the whole ceiling, as in the Majestic Theater, at Boston, or the Auditorium, in Chicago, was a perfect success in one instance and a doubtful result in the other, giving really too much sound and a little tendency to harshness. A certain architect made quite a reputation for himself by effectually stopping echo in a theater by the simple process of furring up the floor a few inches. But when he came to apply the same treatment to another house of slightly different disposition and plan his scheme was an utter failure. There are some cases of houses which when empty resound like a sounding box but which when filled with people and warmed are mellow and pleasing in their acoustic properties. In fact, it may be generally stated that a hall which is even tolerable when empty is pretty sure to be greatly improved, if not perfect, when warmed and filled, and the comforting thought in connection with the whole vexatious problem is that, after all, most halls of audience are good acoustically and a very small percentage of those that are built are so bad that they cannot be used or that they bring discredit upon architect or owner.

The Public Bath—II.

THE GERMAN TYPE.

BY HAROLD WERNER AND AUGUST P. WINDOLPH.

WE find that there is established throughout Germany, even in the smallest towns, public baths with at least the shower facilities. The most notable improvements in the German baths have been made in the development of the shower bath, in pool bath construction, in the workmen's bath, and the technical excellence of the fittings. There is also an admirable system of compilation, which shows the attendance and cost of maintenance.

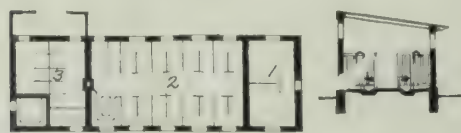


SMALL BATH, HANNOVER.

1. Men's Waiting Room. 2. Women's Waiting Room. 3. Office. 4. Men's Shower Halls. 5. Women's Shower Halls. 6. Wash Room.

An early form of the small municipal bath is illustrated from Hannover.

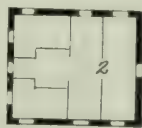
Most of the early buildings were provided either with swimming facilities or with the tub bath, as in England, and it was not until 1880 that Lassar, a German authority, following the suggestion offered by Vasher for reform, recognized that the best means of bathing the people should be a bath combining extreme simplicity and economy. He accordingly advised the sole use of the shower bath for the middle and working classes as the most practical of all. He further suggested the installation of a certain number of these bathing compartments for the use of the workmen in industrial establishments, as well as in the mines. These baths have been known as the workmen's baths and have proved most successful throughout Germany, and they could be used with good results in this country, both in the mines and in large manufacturing plants. They are inexpensive in construction and simple in plan, consisting of the requisite number of shower compartments with dressing room provided with adjustable poles which can be raised to the ceiling, thoroughly isolating the articles of wearing apparel. Some of these workmen's baths are provided with disinfecting rooms, thus furnishing a bath for the clothing as well as for the bather. Some simple forms of workmen's baths



BATH AT KRUPP WORKS.

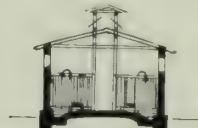
1. Tub Rooms. 2. Shower Room. 3. Toilets.

The public laundry and wash house, which have always been a working feature in the English bath house, have of late years been practically discarded in Germany. The last public bath and wash house was constructed in Augsburg as far back as 1871; to-day we find the laundry in a special building.



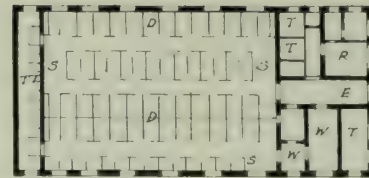
BATH AT KRUPP WORKS.

1. Tub Rooms. 2. Shower Rooms.



shows the simplicity of the shower arrangements, the angle of spray and the floor section for drainage.

A somewhat larger bath is illustrated from Borsigwerk. This building has a capacity for bathing fifty workmen simultaneously. The showers are arranged in separate compartments with ample rooms for administration.



WORKMEN'S BATH, BORSIGWERK.

E. Entrance. S. Shower Rooms. D. Dressing Compartments. T. Tub Room. R. Retiring Rooms. W. Waiting Room. Toilets.

Still another type of workmen's baths, for miners, provides for bathing the men in common in a long bathing hall with a straight row of double showers, the young men having a separate room. Adjoining rooms provide for the hanging of the clothing. Offices, an emergency hospital and a morgue are also provided.

The following general recommendations have been urged by the German authorities for workmen's baths, which it would appear are equally applicable to the larger type of baths:

1. The greatest possible utility in the least possible space.
2. Ease and convenience in cleansing the bath compartments.
3. Avoidance of all wood.
4. Prevention of draught with the rational position of the shower nozzle (preferably at forty-five degrees).

The success of the workmen's bath resulted in the adoption by the various municipalities of a type of small bath modeled on these lines. Their capacity ranging from a dozen bathing units in the minor establishment to fifty or one hundred units in cities of the first class.

The people's bath at St. Paul's, Hamburg, is a type of the small city bath in Germany. There are four shower compartments for women and eight for men. The building is situated at the corner of two streets and has proved serviceable and economical in operation.

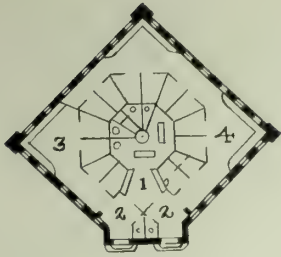
A somewhat similar municipal bath for cities of the second class is illustrated in the public baths of Chemnitz. The plan shows the proper proportion of men and women shower compartments with the corridors against the exterior walls.

The municipal bath at Mannheim has separate waiting rooms for the sexes with provisions for fourteen shower compartments, ten for men and four for women. The corridors are on the outside walls and numerous windows provide

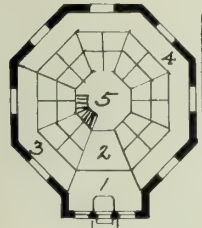


GERMAN MINERS' BATH.

1. Workmen's Dressing Hall. 2. Workmen's Shower Room. 3. Young Workmen's Showers. 4. Office. 5. Morgue. 6. Sick Room. 7, 8, 9. Lamp Stations. 10. Oil Room. 11. Toilets. 12. Entrance.

PEOPLE'S BATH, ST. PAUL'S
HAMBURG.

1. Office. 2. Waiting Rooms. 3. Women's Showers. 4. Men's Showers.

SMALL BATH,
MUNICH.

1. Waiting Room. 2. Office. 3. Women's Shower Hall. 4. Men's Shower Hall. 5. Staircase to Boiler Room.

The establishment also includes a laundry and superintendent's living quarters.

The vapor, hot air, steam and Roman baths have lately been introduced into the larger establishments and

ample light and air. The plan is compact and is well adapted to the needs of a small city.

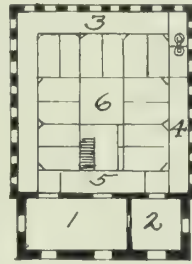
The small bath at Munich shows the use of the octagonal plan with provisions for four showers for women and eight shower compartments for men.

The City Bath at Mainz shows the entrance for the sexes properly separated. This plan with some modifications has been adopted by towns and small cities throughout Ger-

are well illustrated in the public baths of Stuttgart, Munich, Frankfurt and Hannover. These large baths mark the acme of modern bath construction on the continent, and with their large double-story bathing halls and domed ceilings recall in a measure the early splendor of the Roman baths. As a rule they have been developed on an unsymmetrical plan with a picturesque treatment of the exterior—in their ornateness recalling the British baths.

The bath at Stuttgart, completed in 1892, is provided with two pools. The women's plunge is on the main street and conveniently arranged to the entrance hall. Access to the men's plunge room is provided through an extremely long, groined corridor. It is difficult to understand why the men's pool, serving the principal bathing purpose of the institution, should be placed at the extreme rear of the plot,

—particularly as there is no rear access provided, —necessitating a walk of some three hundred feet from the entrance hall. Preliminary shower rooms are also provided for, with a second story

SMALL BATH,
MANNHEIM.

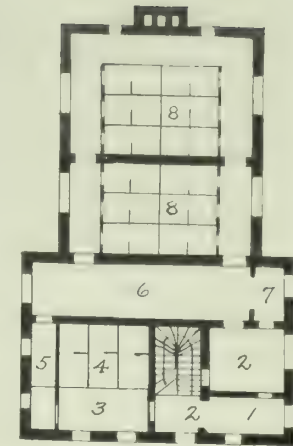
1. Men's Waiting Room. 2. Women's Waiting Room. 3. Men's Showers. 4. Women's Showers. 5. Office. 6. Dry ing Room.

of dressing compartments for the plunge room. The tub bath provides the auxiliary means of bathing on this floor, and the engine and power rooms and a few tubs for medicinal purposes are provided for in the base-

ment of the main building. The narrowness of the

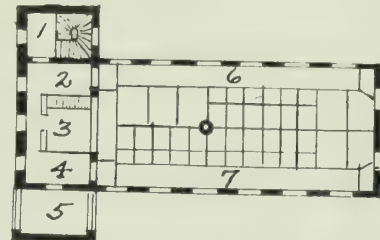
plot makes economical planning exceedingly difficult, and the numerous long corridors and passages, though direct, are of little assistance in promoting easy communication and convenience of handling the bathers.

The bath at Munich is another elaborate example of the modern German type. The large pool baths, the Roman bath, a circular room with provisions for cold and warm immersions with the adjoining steam, spray, vapor and rubbing rooms makes the plan complicated and the structure costly. It is needless to say that a plan of this character is hardly adaptable for use in America for public purposes. Many of its sanitary features are adaptable for municipal purposes, although its general features offer more suggestions for the private, so-called Turkish and Russian baths.



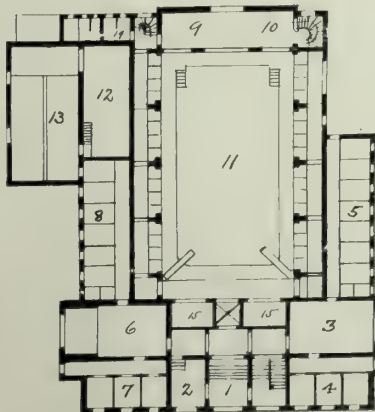
BATH CHEMNITZ.

1. Entrance (women). 2. Office (both sexes). 3. Women's Waiting Room. 4. Women's Showers. 5. Women's Toilets. 6. Men's Waiting Room. 7. Entrance (men). 8. Men's Showers.



BATH AT MAINZ.

1. Entrance. 2. Women's Waiting Room. 3. Office and Wash Room. 4. Men's Waiting Room. 5. Entrance. 6. Women's Shower Hall. 7. Men's Shower Hall.



FIRST FLOOR PLAN.



SECOND FLOOR PLAN.

BATH AT QUEDLINBURG.

1. Entrance. 2. Office. 3. Waiting Room (women). 4. Women's Tubs, First Class. 5. Women's Tubs, Second Class. 6. Waiting Room (men's). 7. Men's Tubs, First Class. 8. Men's Tubs, Second Class. 9. Preliminary Cleansing Room for Adults. 10. Preliminary Cleansing Room for Children.

11. Pool. 12, 13. Upper Part of Boiler and Engine Room. 14. Toilets. 15. Rooms for Bath Clothes.

SECOND FLOOR.

1. Steam and Hot-Air Baths. 2. Retiring Rooms. 3. Superintendent's Quarters. 4. Toilets. 5. Balcony for Children.



THE MULLER BATH, MUNICH.

1. Entrance Hall. 2. Office. 3. Men's Waiting Room. 4. Women's Waiting Room. 5. Men's Pool. 6. Preliminary Cleansing Room. 7. Tub Baths for Men. 8. Women's Pool. 9. Retiring Rooms. 10. Steam, Hot-Air and Vapor Baths, and Women's Pool. 11. Refreshments. 12. Tub Baths for Women.

is far more compact and economical than the Stuttgart Baths. The different classes of bathers for both sexes have quick and convenient access to the various bathing halls and the arrangement for diverting the various classes of bathers is to be commended.

The bath at Hannover, completed in 1905, illustrates the highest type of public bath development in Germany. This establishment, facing on two streets, with a plot of ample size, has a decided advantage for ease of administration. The arrangement of the courts provides each wing with a liberal amount of light and air. The bathing halls and administration are in the main building, while the superintendent's living quarters are in a separate building on the rear street;—the boiler and powerhouse is also isolated. The exterior is rather stiff and formal and is characteristic of the late German work. The administration wing is well expressed, though the ecclesiastical appearance of the bathing hall pavilions, while interesting and vigorous, has but little of the character of the municipal bath house.

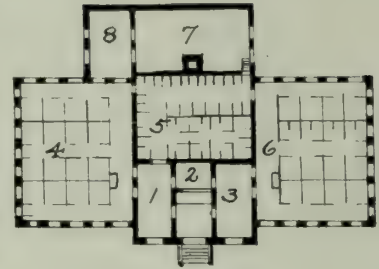
The plunge room is typical of the latest period of construction on the continent. A large, two-story bathing hall has a cove ceiling with penetrations for clear story openings, affording ample light and air. The dressing compartments are in groups of three between the piers. Easy staircases on both ends give access to a second story of dressing-rooms. Access is afforded to the dressing-rooms from the main entrance by means of the exterior corridor, and from the dressing-rooms in turn to the preliminary cleansing shower room with accessory toilets. From the cleansing showers to the pool runway is but a few steps. The preliminary cleansing shower rooms are provided with a series of wall showers, with additional foot basins,—a recent innovation. The first-class pool is very liberal

The city bath at Frankfort, completed in 1896, is provided with three pools. Separate waiting rooms are provided for the sexes, with adjoining refreshment rooms. Corridors from these waiting-rooms lead to the respective pools and tub bathing halls. The plan

in capacity, containing some 200,000 gallons of water,—the pool's depth varying from three feet to ten feet, its water area, forty-six feet in width by ninety-five feet in length. The women's plunge room has preliminary cleansing rooms in alcoves to the rear with eleven shower and foot baths. The Brauseraum is a square chamber with shower alcoves on the corners, and two small pool baths at different temperatures are arranged in the apses. The sanitary appliances and appointments of this room are very elaborate and costly, and suggest the private bathing establishment.

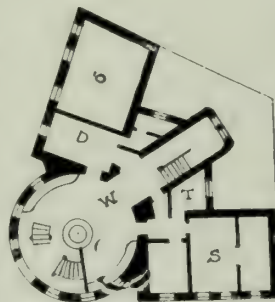
The second-class swimming pool, somewhat smaller in size and capacity, is not provided either with the outside runway or dressing compartments. The bather after entering from the street ascends the staircase to the second-story balcony where simple racks and hooks are provided for his wearing apparel. After undressing he descends the staircase to the preliminary cleansing wall-showers and then to the pool.

The connecting wings on the first story are mainly devoted to retiring compartments, tub-rooms, refreshment and toilet rooms. The second floor, main wing, is entirely devoted to tub-bath purposes. It may be noted that



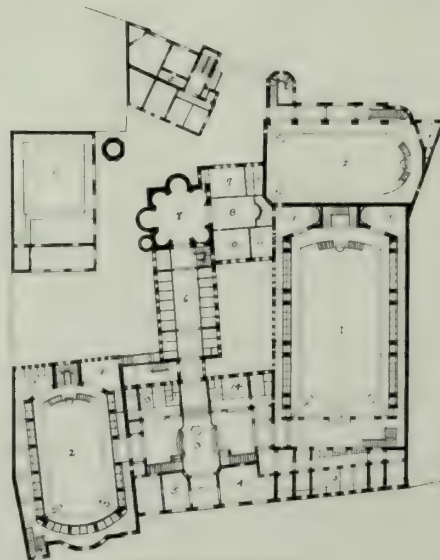
BATH, BERLIN.

1. Men's Waiting Room. 2. Office. 3. Women's Waiting Room. 4. Men's Tub Baths. 5. Shower Rooms. 6. Women's Tub Baths. 7. Power and Boiler Room. 8. Laundry.



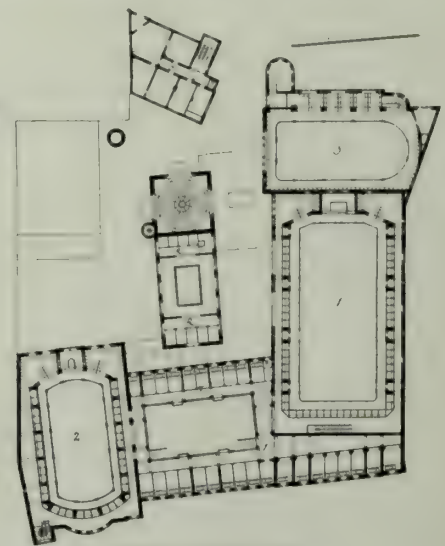
PEOPLE'S BATH, ESTERHAZY STREET, VIENNA.

O. Office. D. Disinfecting Room. W. Waiting Room. S. Superintendent's Quarters. T. Toilets.



FIRST FLOOR PLAN.

1. Men's First Pool. 2. Women's Pool. 3. Main Hall and Office. 4. Refreshments. 5. Hair Dressing Room (women). 6. Retiring Rooms. 7. Shower Room. 8. Spray Room. 9. Steam Bath. 10, 11. Hot Air Rooms. 12. Men's Second Pool. 13. Tub Rooms. 14. Bath Clothes. 15. Preliminary Cleansing Rooms. T. Toilets. P. Power

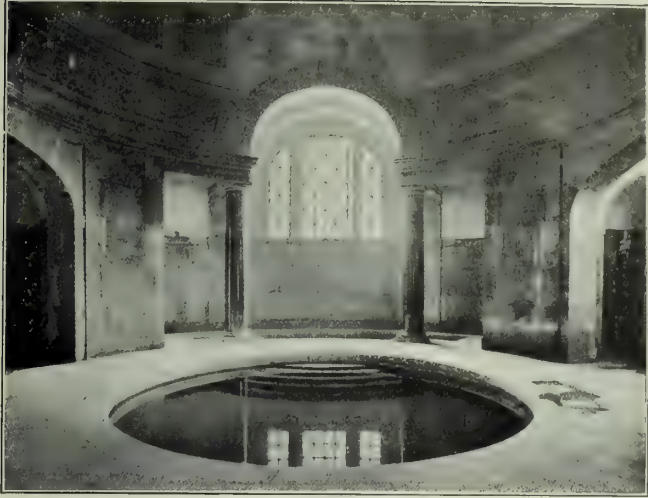


SECOND FLOOR PLAN.

House. S. Superintendent's Living Quarters.

SECOND FLOOR

1. Men's Pool, Balcony Lockers and Dressing Compartments. 2. Women's Pool, Balcony Lockers and Dressing Compartments. 3. Men's Second Pool, Balcony Lockers. R. Retiring Rooms. Superintendent's Quarters. T. Tub Rooms.



ROMAN BATH, MUNICH.

this large space provides only twenty-eight bathing units, — so generous an allowance could hardly be commended from the standpoint of municipal economy.

As in Germany and England, the first bathing institution in Austria was a city river bath, on the Danube, at Vienna — some thirty years later than its German prototype and nearly a hundred years later than the old English bath on the Mersey. At the present time Vienna is equipped with several bathing institutions provided with showers similar to the Berlin baths. The Esterhazy Street People's Bath, Vienna, has the advantage of a corner location with numerous openings for light and



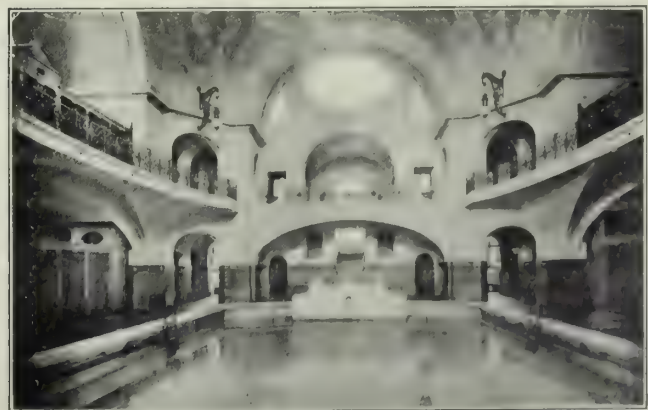
PRELIMINARY, CLEANSING ROOM, BATH AT MUNICH.

air. The waiting room, office, superintendent's quarters and a disinfecting room are on the first floor. The bath halls are arranged on the second and third floors, and the shower compartments and dressing rooms for men and boys are in separate halls. The advisability of placing the women's baths on the third floor and making them of equal capacity to the men's is to be questioned. Allowing special provisions for youthful bathers is a practice prevalent to-day in Germany as well as Austria.

The public baths of France and the comparatively few baths of Southern Europe have little to offer us either in design or construction, as in most cases they have followed English or German models, which have also served as a type for baths in the United States.



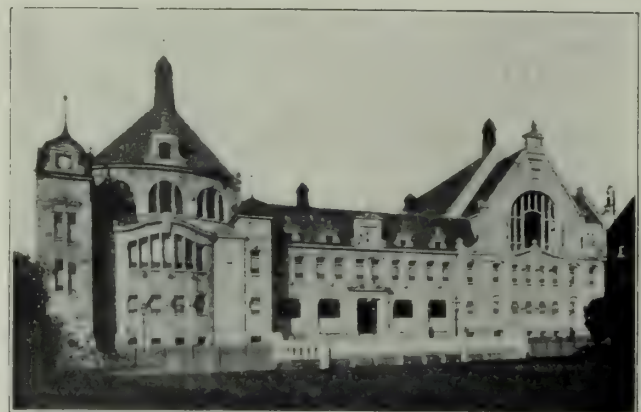
MEN'S POOL, FIRST CLASS, BATH AT MUNICH.



WOMEN'S POOL, BATH AT MUNICH.



BATH AT MUNICH.



BATH AT HANNOVER.



MEN'S POOL, FIRST CLASS, BATH AT HANNOVER.



MEN'S POOL, SECOND CLASS, BATH AT HANNOVER.

On the Buying of Architectural Books.

BY L. A. WARREN.

THE American student abroad is apt to be forcibly impressed with the variety of good architectural publications there within easy reach of a moderately filled pocketbook, and if he is ambitious, and appreciates the value of books, he is very apt to bring back with him as large a working library as his means will stand. In the same way the draughtsmen in our American offices are quite likely to begin the formation of a professional library while they are still mere beginners. While books are an absolute necessity for a successful architect, the immediate need for their possession by a student or a draughtsman is to be questioned. In these days of most excellent public libraries, when so many architects have excellent working collections of books in their offices, to which the draughtsmen have free access, there is not the slightest real necessity for a young man to encumber himself with architectural folios, and his money would be spent to far better advantage in subscribing freely to the American, English, French and German architectural publications. Besides, a young man is usually in a formative state, he is not likely to find himself early, he does not know in which direction will lie his greatest opportunities, nor does he know the kind of books from which he can draw, nor even surely

the architectural style which will be his ultimate expression. The standard works he can always consult in a library. Others he does not yet need, nor know how to use. My advice to a young man would therefore be, to keep and study the files of at least four of the best architectural serials, to buy very sparingly of architectural photographs, and to limit his library to a thoroughly good edition of Vignola, and a copy in the original of Guadet, if he can read French. Then when he is through with the preliminary stage, let him gradually accumulate his library as he feels the real need thereof, buying only works that can be of actual help in his business, and making them thoroughly his own. And the student abroad can well afford to neglect the opportunity to buy good books cheap, for he will not need them at first, and later on he may find himself loaded up with books which he does not want. A compact, small library, every volume of which meets a known want, every illustration catalogued and ticketed both mentally and by a proper card index, is a necessity to every architect who means to grow and who wants to make the most of himself, but to be of the most value it must accumulate slowly as his practice grows, and must not be encumbered with the debris of youthful, indiscriminate enthusiasm.

"Homewood"—A Famous Colonial Mansion of Maryland.

"HOMEWOOD," surrounded by sixty acres of wooded land, and having one of the finest locations in Baltimore, is considered the best example of Colonial architecture in Baltimore County. It was, however, built much later than the Colonial period and was the last of the well-known brick Colonial houses of the South, which may account for its refinement. It is also the farthest north of any of the houses of this class.

over which still remain parts of an old bridge. The entrance was from the York Road and through what is known as Mariman's Lane; the estate—now very much reduced in area—is entered from Charles Street Avenue, only a few hundred yards from the east front.

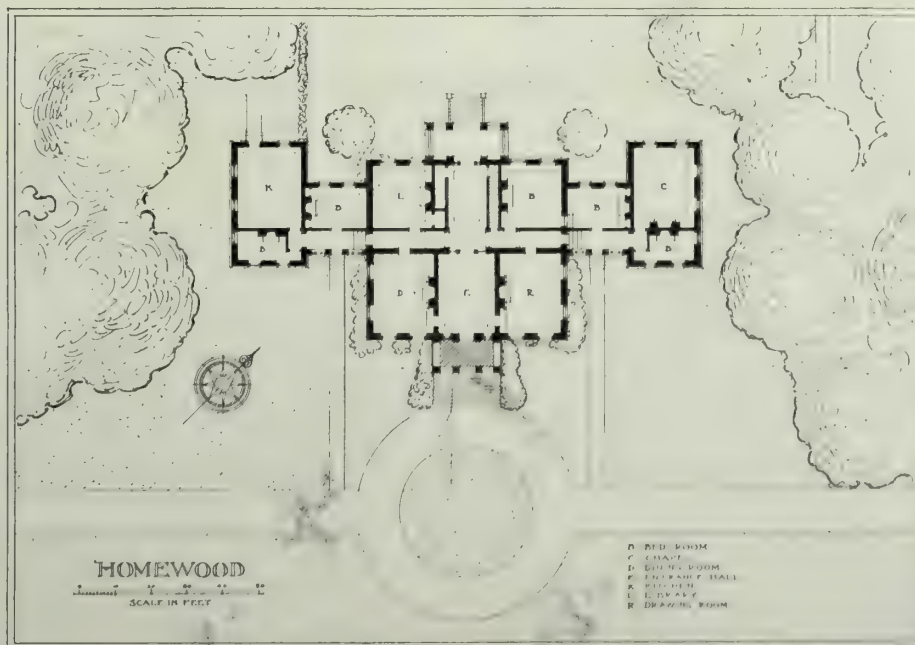
A short driveway under tall trees leads to a flight of wide, marble steps, guarded on either side by a wrought



"HOMEWOOD," BALTIMORE, MARYLAND.

Colonial houses show a marked difference in Maryland and Virginia from those farther north,—in the North, they were built on small estates, while in the South they are on very large estates.

It is a low, rambling building one hundred and forty feet long, with the principal front facing southeast and opening onto a large lawn which is terraced down to a brook,

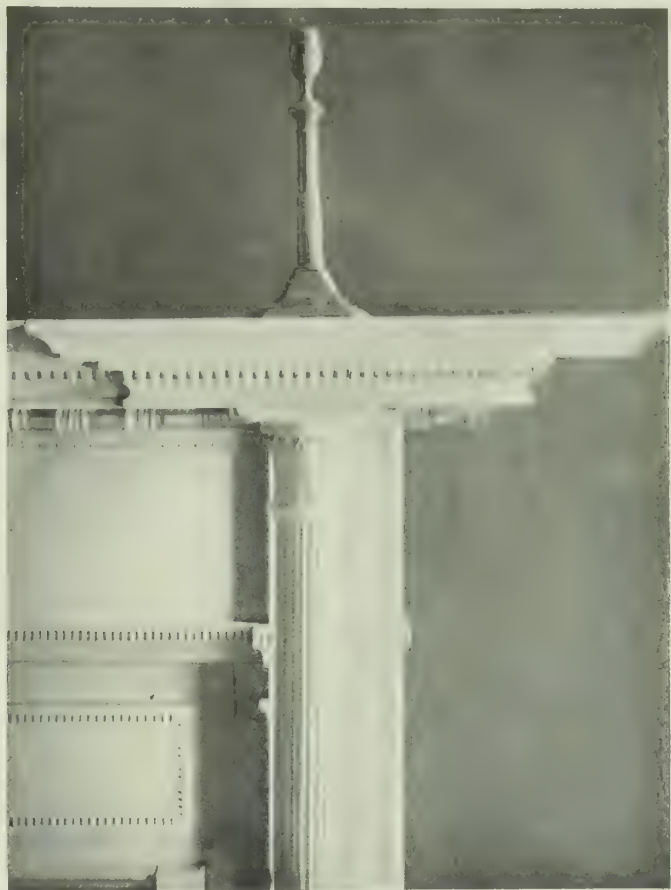
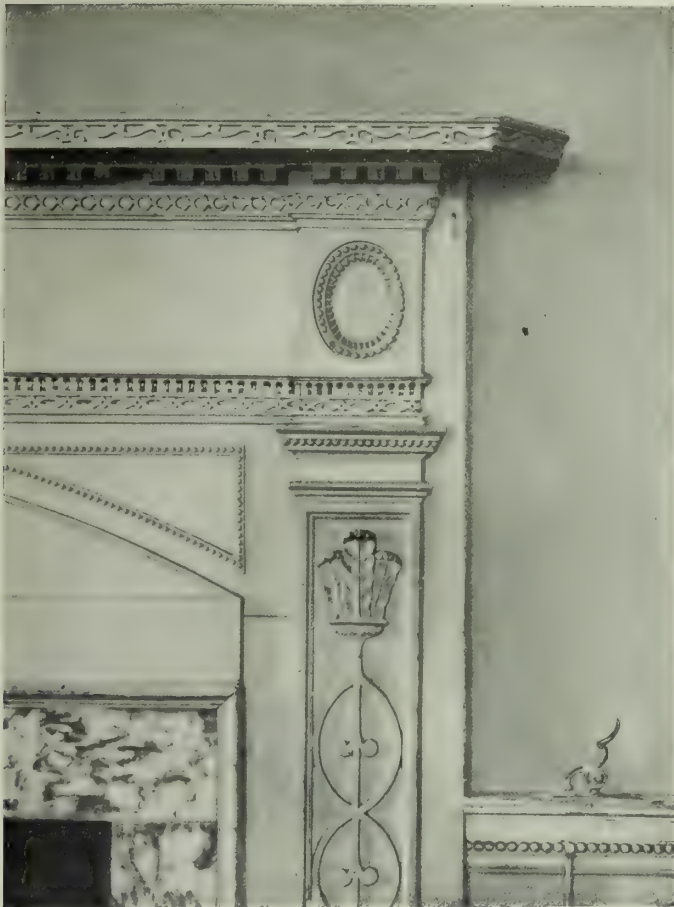


iron balustrade, covered with honeysuckle. These steps lead to the marble pavement of the porch, which is the keynote of the design. The wood columns are unusually delicate and refined, as is the general detail of the porch and entrance,—the pediment, richly ornamented in cast stucco, has no equal in any of the older houses, and the real charm of



DETAILS OF "HOMEWOOD."





DETAILS OF "HOMWOOD."



"Homewood" lies in the liberal handling of unusual and refined detail.— In general, the design shows the influence of the Annapolis and James River houses. Here the designer breaks away from architectural traditions, and influences a style of detail that is found generally in old Baltimore houses, such as "Montebello," built only a few years after.

The exterior walls are of small, red brick laid in Flemish bond with sills and stone courses of a light, soft stone. In the north and south connecting wings are most carefully built brick arches, over the Palladian windows, — the semi-circular arch springing from the flat arch, all having the same center and being self-

rooms being on the ground floor. The chimney-pieces show quite the same refinement and free design as the exterior, and they are of a very marked difference in the various rooms. All the ornament throughout the entire house is cut in wood. Fine geometrical designs; beading and fluting are freely and effectively employed. The visitor is much impressed with the finish and graining of the doors, which are pine, but generally taken for mahogany.

"Homewood" was built in 1803 by Charles Carroll of Carrollton, as a residence for his son, Charles Carroll, Jr., who, in 1800, had married Miss Harriet Chew of Philadelphia. On the death of Charles Carroll, of "Home-



THE STABLE, "HOMEWOOD."

supporting. There still hangs at the left of the east entrance the cast-iron seal of the fire company of long ago.

The entrance is through two sets of doors, the outer of glass and the inner of wood, opening into a large, square entrance hall, screened from the main corridor by a glass door and side lights with a leaded glass transom.

A corridor extends through the length of the house from the kitchen to the chapel. In the corridor and entrance hall are wood arches, finely wrought by the skilled workmen of the time. An enclosed stairway leads from the garden entrance hall to the second story, where there are but four bedrooms, — most of the bed-

wood," his son, Col. Charles Carroll, inherited the estate, and later, on the death of his grandfather, in 1832, Col. Carroll inherited Doughoragan Manor, in Howard County, where he made many alterations and took up his residence. On December 20, in 1839, "Homewood" was conveyed to Samuel Wyman, who made it his residence during the remainder of his life. His son William inherited the property about 1877, and conveyed it to the Johns Hopkins University in February, 1902. The new buildings of the University are to be built around the present house and are to be in the same style. The old mansion is to be used for the residence of the president of the University.

An Interesting Bungalow.

BY W. H. ANSELL.

UNDOUBTEDLY the most successful bungalow is one that has been designed with a governing idea, a root motive, so that the purpose of the building is obviously expressed in its planning.

The illustrations show such an one. It was planned for a man of moderate wealth, who, whilst wishing to get away from the conventionalities and restrictions of city life, had the intention of "roughing it" in comparative comfort, and of keeping his bungalow well filled for a great part of the year with young and lively company.

The whole of one end of the central part opens to the veranda, which has, on either side, deep, shady lounge bays. Meals will be often served in these bays, and to facilitate this a door communicates from the kitchen to the veranda.

The other end of the living-room has a small stairway leading to a minstrel's gallery, where the fiddlers play when the hall is cleared for the dance or the winter party. The sleeping arrangements are a feature of the planning. From the entrance hall two bedrooms are entered, in which the married visitors are usually accommodated, and at either end of the veranda is a sleeping apartment, men's side and girls' side.

Each of these apartments is divided into three cabins by thin concrete partitions. One side of the cabins is fitted with two hanging bunks which can be unhooked and taken down. At the end of the bunks is a roomy wardrobe or cupboard fitted with shelves above and hanging space below. Opposite the bunks are hinged seats which fold flat against the wall when not in use. Outside the wardrobe are strong shelves where trunks and bags may be stored. The fitting of mirrors with convenient shelves for brushes completes the furnishing of men's side and girls' side which thus require no movable furniture whatever, but are ready at any time for guests. As each cabin is six feet wide and has its own door and window it can be made into a private

room. To minimize the amount of service required, wash basins are fitted in a bay with high windows, and at the end of the compartment, approached through a cut-off lobby, is the sanitary adjunct which contains a shower bath.

The outside walls are brick whitewashed, and as even

so simple an operation as whitewashing is not always done in the best manner, save, perhaps, when the genius of a Tom Sawyer directs the proceedings, it may be as well to specify how this was done. Unslaked lime was used, mixed in small quantities, and while the ebullition was going on a generous allowance of Russian tallow was stirred in, and the hot preparation applied immediately to the

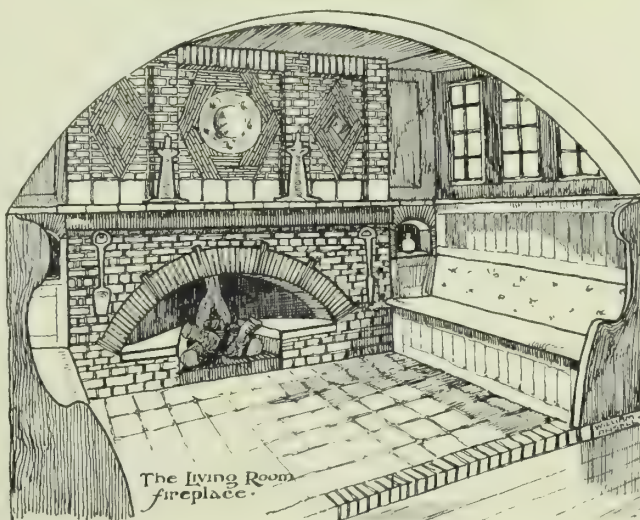
walls. Two coats of this made the exterior like a duck's back, so far as throwing off the water was concerned.

The walls inside were plastered. The living-room depends for its effect on its shape, a Greek cross, its simple, big-arched recesses over table and fireplace, and the air of mystery attendant on the minstrel's gallery overhead. The fire is open, with small brick hobs on which the log ends rest. The mantelpiece is formed with thin red bricks wide-jointed, and a shelf of the same thick red tiles with which the whole recess is paved. The wall above is divided into panels, which have tiles set edgewise in diamond and hexagonal shapes. On the center panel is hung a dull gleaming

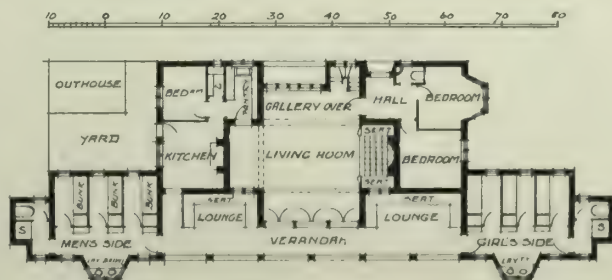
copper targe, in which the flickering candles are reflected.

The side seats of oak, left clean from the tool with ends shaped like old settles, have boxes under, in which many things are stored, from golf clubs to Wagnerian opera.

The furniture of the living-room almost demands a special article to itself. With the exception of the grand piano it was made to the architect's designs by the village wheelwright, and some of the fine craftsmanship that one finds in the old farm wagons is also found here. In short, simplicity, but not dullness or monotony, has been the root motive, the governing idea of the whole.



ELEVATION



PLAN OF BUNGALOW

A Fireproof Building Which was Fireproof.

THE Exchange Club, Boston, was erected a dozen or more years ago from the designs of Henry B. Ball, architect, and is occupied entirely as a dining club. It is of burnt clay fireproof construction throughout, the only wood appearing being limited chiefly to the trim and to the floors. There are dining-rooms on each story, all of them supplied from a central serving-room in each story, the serving-rooms of the various stories being connected by lines of dumb waiters.

On the tenth of February fire broke out in the serving-room in the third story. This room has no outside light of any description, being entirely surrounded by the dining-rooms and service corridors. The fire had as much opportunity to spread as would ever occur in a building of fireproof construction. The pantry shelves and much of the fittings of the room were of wood, and of course the floors and door finish were likewise of the same material. The fire rapidly spread from the third story through each floor above, communicating by means of the dumb-waiter shaft. The enclosures of these shafts were of terra cotta, but in each story was an opening, with wooden doors, and the elevator cars and guides were of wood. The vertical opening was not fire stopped at any level.

The interior of the serving-room on each story was almost entirely gutted. The fire department managed to keep the fire under very good control without using a great deal of water, most of the extinguishing being done by the use of chemicals. The fire spread out in the corridors adjoining the serving-rooms, destroyed wood finish and partly damaging the upper floors in places; though in no case did the fire spread so as to destroy the finish for a distance of more than fifteen or twenty feet beyond the serving-rooms. A great deal of damage was done by smoke, necessitating the entire re-



THE EXCHANGE CLUB, BOSTON.
Photograph taken after the fire.

finishing of the building throughout. All the doors to the dumb-waiter shaft were consumed, and the cars entirely disappeared. With their customary disregard of nice finish, the firemen did a good deal of damage by unnecessarily smashing doors and cutting away at finish. The total loss to the building, however, was only about twenty-five thousand dollars, and this loss was confined entirely to the finish, the structural damage being absolutely nothing. Since the fire, in making the repairs, the dumb-waiter shafts have been entirely closed.

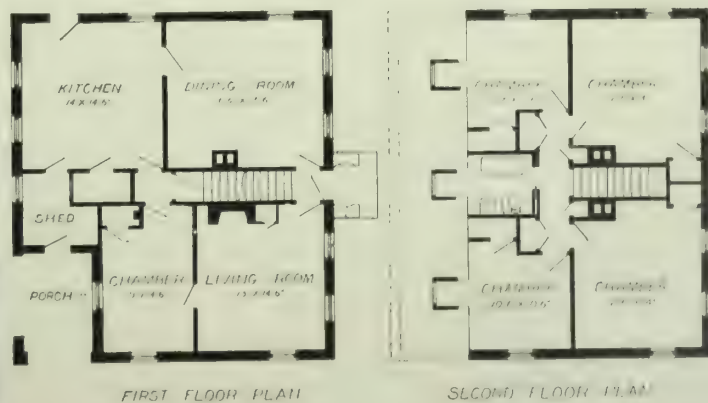
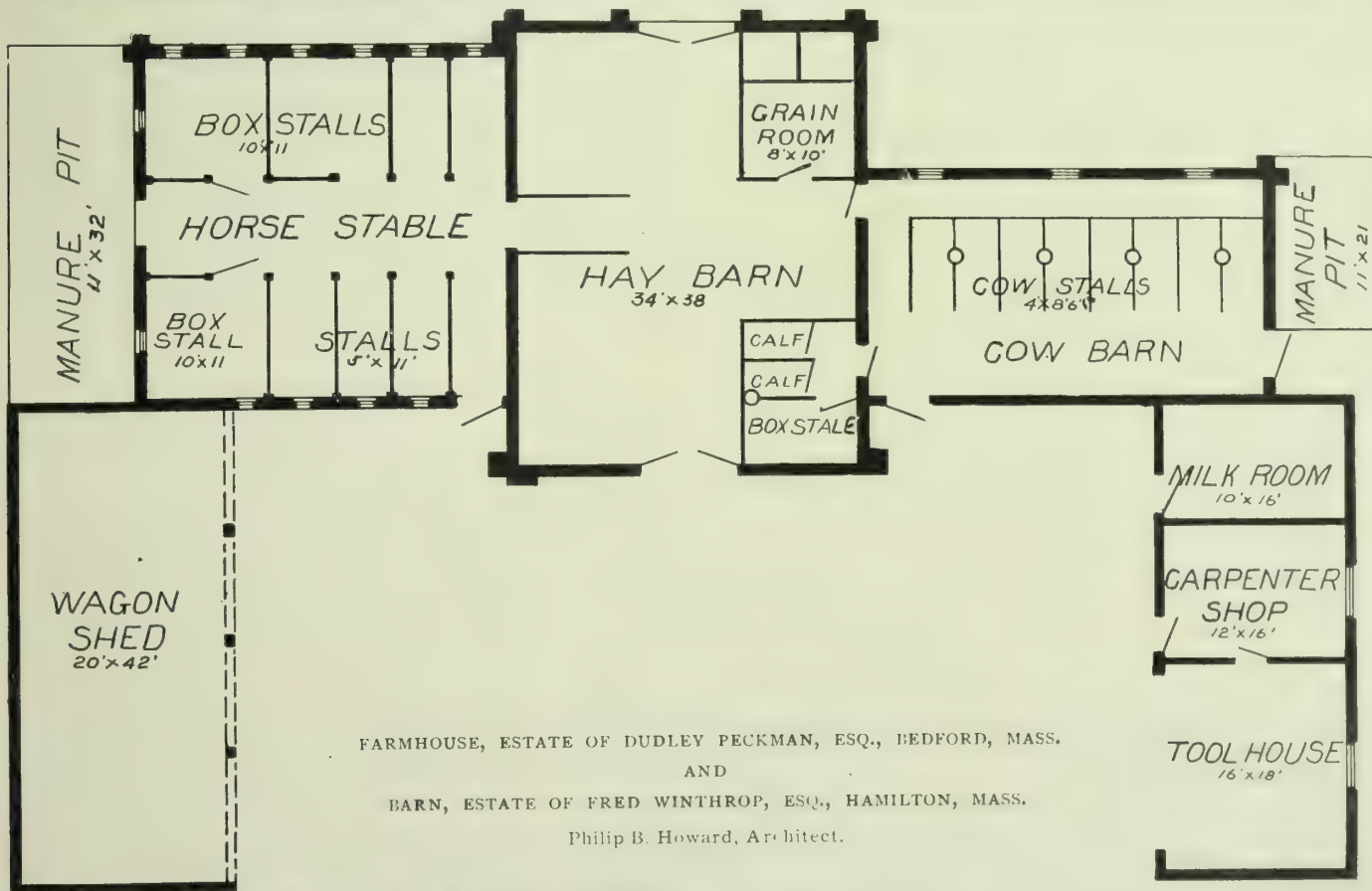
This affords an excellent illustration of the value of fireproof construction. Here were all the conditions favorable to a bad fire; the interior room, none too easy of access by the firemen, in a portion of the building where an incipient fire might easily be overlooked, with rather more than the ordinary amount of combustible material ready at hand for the flames. The fire while it lasted, and in the location where it started, was hot enough to do a good deal of damage; and had this building been of second-class construction, and had the fireproofing construction been any less thorough than it was, there would undoubtedly have been a very serious loss. It was the fireproof construction that saved it, and the principal damage was to paint and plaster, by mere smoke and water.

We have had a number of examples within a short time of fireproof buildings which were not fireproof. The value of fireproofing methods has been brought severely into question, and their real efficiency has been questioned. It is, of course, impossible to fireproof the contents of any building, but the Exchange Club shows how a fire can be restricted to the rooms in which it starts or into the spaces immediately adjoining. No one would say that a dumb waiter should be equipped with wooden doors, but barring this one fault, which enabled the fire to spread rapidly through three stories, the Exchange Club fire abundantly demonstrated the value of fireproof construction when properly applied and understandingly employed.

The Schoolhouse Fire at Cleveland.

THE horror in the Collinwood School at Cleveland is being held up as a warning. But for whom? As in many other disasters there is danger that the warning will lose its effectiveness by its lack of a definite objective. The people have been warned repeatedly against improperly constructed schoolhouses, against defective means of exit, dangerous heating apparatus, lack of fire drill, overcrowding, etc. No further warning is needed on these points. What the public needs now is a lesson in the duty and responsibility in government, says the Boston *Herald* editorially. Some authority was responsible for the conditions which existed in that Cleveland schoolhouse. There was criminal neglect in the light of every-day

knowledge of what constitute proper and safe conditions. That responsibility should be fixed and a proper penalty imposed upon the officials who neglected their duty. If out of this disaster there can be read to public officials an emphatic lesson of duty and a demonstration of the penalty that justice demands for neglect, the warning of the holocaust may not be without its effect. There can be no excuse in these days, for schoolhouses with improper fire escapes, or with but a single commodious exit. There should be no toleration for schoolhouses with heating apparatus located directly under the main stairway or with doors opening inward or with passageways so narrow as to invite congestion and panic. In these days of fireproof construction why should tinder boxes be used for the housing of school children?



Editorial Comment and Selected Miscellany

ARCHITECTS might, perhaps, find advantage in concerted action to protect themselves against the practice, which is rapidly growing among contractors and dealers, of trying to hold them responsible for work done, or materials furnished, for their clients or for other contractors. Where a piece of work involves a number of small contracts it is not at all unusual for the architect to find that at least one-half the bills sent to him for approval are made out against him personally, although it has been perfectly understood from the first that he was acting in behalf of a client whose name was known to all the parties concerned. In the great majority of cases the architect corrects or approves the bill, without noticing, perhaps, the name to which it is charged, or wishing to save the time and trouble required for sending it back to be made out to the proper person; and it is paid in due course, together with the bills properly made out. Legally, this is safe enough, as many decisions of the courts have held that where an architect, known to be such, orders goods or work for a principal whose name he gives, or is ready to give if it is asked, the principal only, and not the architect, can be held liable for the price of the goods or work. Notwithstanding the legal aspect of the case, the practice in question is confessedly adopted by contractors, not through inadvertence, as is sometimes pretended, but with the object of holding the architect in some way responsible for payment of the price of the goods or work. Even if he is not legally bound, he may not know his rights, and it is easier for contractors or dealers in materials to hold the threat of a lawsuit over him than to inquire for themselves, as the courts have decided is their duty, into



WORCESTER COUNTY INSTITUTION FOR SAVINGS, WORCESTER, MASS.
Winslow & Bigelow, Architects.
View from Gallery, showing Guastavino Dome.



INTERIOR OF DOME, WESTMORELAND COUNTY COURTHOUSE,
GREENSBURG, PA.

Built of Terra Cotta made by Northwestern Terra Cotta Co.
William Kauffman, Architect

the solvency of the real purchaser before they deliver the goods or do the work. Of late years this disposition to hold the architect as guarantor of contracts has increased to such an extent that an architect who endeavors to secure the best results for his clients by subdividing their contracts exposes himself to ruin. We hear a great deal from the smaller contractors of the bad results of erecting buildings by huge blanket contracts, and architects understand as well as anybody the disadvantages, artistic and practical, of doing so; but until the smaller contractors are willing to keep within their legal rights, and treat architects as the friends and advisers of both parties, and not as the guarantors of the agreements that their clients make through them, they must expect to fall into the position of subcontractors, which they dislike so much, and with so much reason. It is true that there are many contractors and dealers in materials who recognize and value the true position of architects in relation to themselves and the owners of buildings. It would be unjust to class them with the people who try to obtain over unguarded members of the profession a hold which may, they think, guarantee them against the consequences of their own business incapacity; and the various associations of architects, local and otherwise, might do much to protect themselves, as well as to promote the interests of the contractors and dealers who are willing to treat them honorably, by keeping lists of those who charge goods or work to



TERRA COTTA FIGURE
FOR THEATER AT
SCRANTON, PA.

Conkling-Armstrong
Terra Cotta Co., Makers.

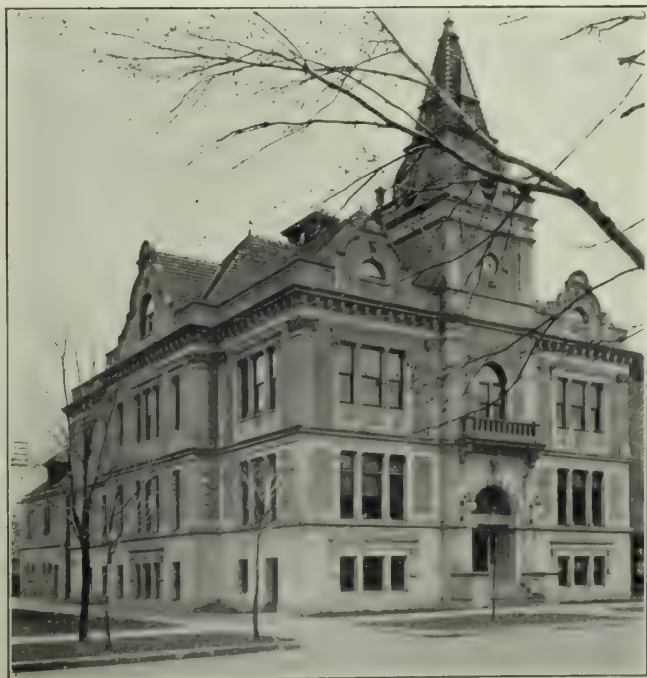
A. E. Westover, Architect.

the architect, instead of to the client or contractor, in order that they may be avoided; with, possibly, a list of those who are willing to promise that, in conformity with the law, if the architect, on request, gives the name of the client or contractor for whom the service is to be done, they may, after further inquiry, refuse to do it, notifying the architect at once of their action, but that they will look for payment solely to the client, or the contractor or his bondsmen, as the case may be, and never to the architect.

EDISON'S CAST HOUSE.

THERE will be a grain of comfort come to those architects who feared that Mr. Edison, with his buy-a-mold-and-some-cement-and-build-your-own-house invention, would deprive them of what little comes their way now, — if what a correspondent in *Cement and Engineering News* states is correct. He says:

"There appeared recently in your publication an article concerning the 'Edison Molded Concrete House,' stating that a two-story structure can be erected for a little over \$1,000, that it can be cast in twelve hours (after mold is in place), that the mold can be removed in six days, that in another six days it will be ready for occupancy, that at the same time all interior and exterior ornaments, as well as the bath tub, mantels, stairs and partitions, will be cast, etc., etc.



CITY HALL, SOUTH BEND, IND.
Built of Hydraulic Press Brick.



DETAIL OF BRICKWORK, MCLEAN HOUSE, WASHINGTON, D. C.

John Russell Pope, Architect.

The brick were furnished by the New York office of Fiske & Co.

"Nobody would welcome such an invention more than the writer — but, being an expert in the artificial stone line, and especially in concrete, with an experience covering a period of over forty years, I state most emphatically that it will be impossible to accomplish this.

"I cannot go into all details here, but will mention a few reasons in support of my statements and warn the public not to be too hasty in accepting Mr. Edison's claims.

"It is surprising that not more dissenting voices have been heard. Are there so few real experts in this line of business, or do they fear to come forth to dispute the opinion of so great a man as Mr. Edison? To fill such a 'House Mold' it will be necessary to have a very thin mixture of cement, so thin that it will flow freely. Thus, it will be seen that the aggregates will settle at the bottom, and the water, taking with it the fine parts of the cement, will come to the top and also ooze out of all joints (because no iron mold composed of so many parts is absolutely water tight). The scum, which always forms, will, of course, go to the top, into ornaments and especially undercuts. The walls of the mold will neither absorb moisture nor air, therefore little air bubbles will form all over the smooth iron mold. Two aggregates will obstruct many places, and large and small holes are the result. A great deal of mending and patching would have to be done, which may cost as much or more than the first cost of the building. Besides this, such a patched-up



FAIENCE PANEL EXECUTED BY
ROOKWOOD POTTERY CO.
Frank M. Andrews, Architect.



OFFICE OF GLIDDEN VARNISH CO.,
CLEVELAND, OHIO.
Roofed with French A Tile made by Ludowici-
Celadon Co.

crete is not kept damp for a considerable time, say fifty to sixty days, the final setting will not take place properly, shrinkage and air cracks resulting.

"In my opinion, it will take at least three months, after curing, before this house would be dry enough for occupancy.

"How about floors, doors and windows? None of

house will not look good, even when done by experts.

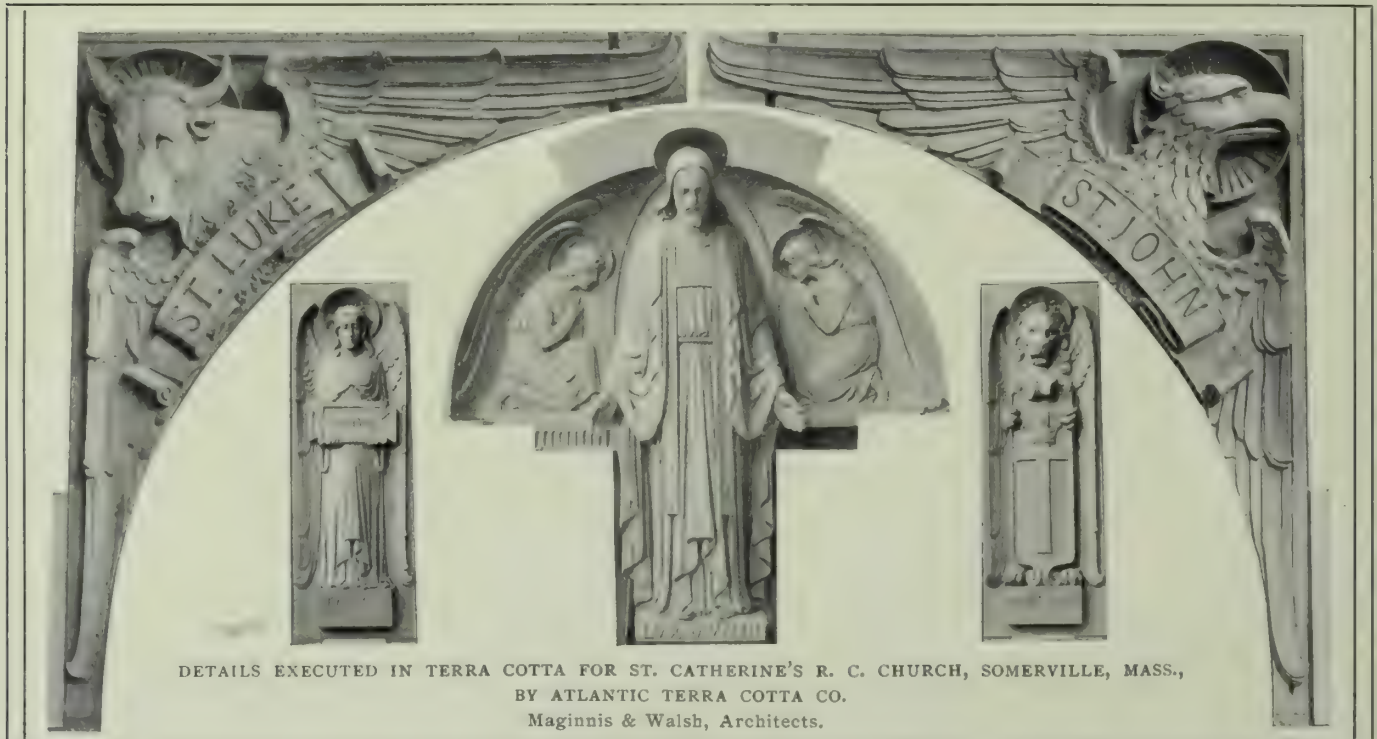
"Next, it is impossible that this house will dry out in six days, nor even in thirty, and if the con-

temporarily located in Havana, writes as follows concerning the conditions, architecturally, as he finds them there: "The high rental of buildings in Cuba, of which there is constant complaint, is due

primarily to the fact that nearly all of the buildings are but one story in height. The owner of the property in order to get a proper revenue on his investment must charge exceedingly high rental for the single story.



HOUSE AT WASHINGTON, D. C.
George O. Totten, Architect.
Roofed with Edwin Bennett's Roofing Tile.



DETAILS EXECUTED IN TERRA COTTA FOR ST. CATHERINE'S R. C. CHURCH, SOMERVILLE, MASS.,
BY ATLANTIC TERRA COTTA CO.
Maginnis & Walsh, Architects.

them can be put in place before the concrete is dry, otherwise they will warp, especially the floors, to such an extent that they will have to be replaced.

"Much more could be said in contradiction, but time and space forbid it."



HOUSE AT FORT THOMAS, KY.
Gordon Sheppard, Architect.
Roofed with American "S" Tile, made by
Cincinnati Roofing Tile and Terra Cotta Co.

BUILDING OPPORTU- NITIES IN CUBA.

A CORRE-
SPOND-
ENT to
THE BRICK-
BUILDER, now

If there were one or more additional stories to the building rents would be less. I believe that the people who will go into this project of putting up some double apartment houses in Cuba will derive rich returns within a few years. The conditions of the country warrant improvements in the building line;—real estate is in good shape.



THE ROBERTSON APARTMENT, CINCINNATI,
OHIO.
Joseph Steinkamp & Brother, Architects.
Built of Shawnee Brick, made by Ohio Mining
and Manufacturing Co.

New building construction is going on in every direction. Artisans and workmen of all kinds are fully employed. The average house and commercial building of the Cuban is simple in detail, but numerous additions have been made since the original structures were put up, and piecing out has added to the intricate arrangement. The poorer classes are crowded together in the queer Cuban combination apartment houses. These light structures are constructed with a view to acquiring as much room as possible for a large number of people. The building itself is usually a large oblong affair with quite a liberal size court in the center. On either side of this court are the several apartments. Often only one room is possessed by a family and frequently these families have a large number of children. This crowded condition is to be deplored but cannot be avoided so long as better and more roomy apartments cannot be had at equal prices. As practically all of these structures are but one story there is not a very large number of people to the acre after all. Cuba is waiting for some one with enough enterprise to come here and put up roomy structures for the rich and for the poor which can be rented or sold at reasonable prices. Rents have doubled since the American occupation, due to the fact that there is a greater demand for houses. As to building materials, the Cuban brick is not up to date in any respect but can be used if required. It is larger than the American type and cruder in every way. Nearly all of the brick buildings are cemented over so that the appearance of the brick facing does not matter very much. Considerable lumber is imported from America, but prices necessarily rule high, due to the cost of transportation. Builders' hardware is another item which adds to the expense of building here. Skilled and unskilled workmen are to be had in plenty, and there are many native artisans. Wages average about even with those paid in America, if anything a little lower."



DETAIL BY R. H. HUNT, ARCHITECT.
American Terra Cotta Co., Makers.

ROTCH TRAVELING SCHOLARSHIP EXAMINATIONS.

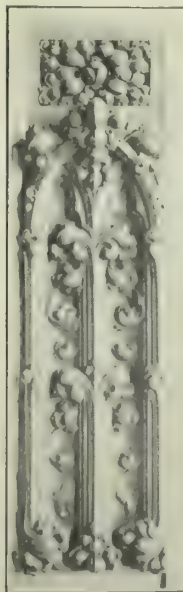
THE examinations for the Rotch Traveling Scholar-



CHURCH OF ST. ALOYSIUS, JERSEY CITY, N. J.
Charles Edwards, Architect.
The 200 tons of Architectural Terra Cotta used in this building were supplied by the New York Architectural Terra Cotta Co.



DETAIL FOR MARYLAND HOTEL, ST. LOUIS.
A. B. Groves, Architect.
Winkle Terra Cotta Co., Makers.



DETAIL BY NEW JERSEY TERRA COTTA CO.
L. A. Goldstone, Architect.



DETAIL BY J. W. ROVER, ARCHITECT.
Indianapolis Terra Cotta Co., Makers.

ship will be held in Boston beginning April 13. Anyone who has been employed during two years in professional work in the Massachusetts office of an architect resident in the state is eligible for the competition. Preliminary examinations are held in History of Architecture, Construction, French, and Drawing from the Cast. Graduates from a regularly accredited architectural school may present their diplomas in lieu of these examinations. Those who are successful in the preliminary examinations will be admitted to the final competition in Design upon which the award will be made. The successful candidate receives \$1,000 per year for two years, to be expended in study and travel abroad. Further details may be obtained upon application to C. H. Blackall, Secretary, 20 Beacon Street, Boston.

BUILDING OPERATIONS FOR FEBRUARY.

WHILE the building depression incident to the recent currency stringency, which shortened the supply of money for building operations and also developed a waiting policy, still continues, there is an improvement in some quarters, which contains much of encouragement. Official reports from some fifty cities received by *The American Contractor*, New York, and tabulated, show a total falling off of 33 per cent, or practically one-third, as compared with the operations of February, 1907. The loss, amounting to about fourteen million dollars, is nearly accounted for in the decrease in New York and San Francisco, amounting to more than twelve million dollars. Chicago holds up remarkably, showing a gain of 9 per cent, while the total value of permits issued is but little more than a million dollars less than those issued in Greater New York.

Among the other cities showing gains are the following: Bridgeport, 39; Cincinnati, 29; Denver, 18; Milwaukee, 87; Minneapolis, 33; Omaha, 6; Philadelphia, 27; Paterson, 61; St. Louis, 9; Spokane, 149; Syracuse, 140; Salt Lake City, 63. The following figures show the percentage of loss in leading cities: Baltimore, 26; Buffalo, 20; Columbus, 53; Davenport, 61; Dallas, 42; Detroit, 61; Duluth, 26; Grand Rapids, 53; Hartford, 63; Indianapolis, 4;

Kansas City, 11; Louisville, 9; Los Angeles, 46; Memphis, 44; Mobile, 42; New York, 59; Pittsburg, 25; Rochester, 55; St. Paul, 52; San Francisco, 66; Seattle, 50; Toledo, 30; Washington, 11.

MAIN DOME, WESTMORELAND COUNTY COURTHOUSE.

THIS dome is built of polychrome and gold enamel terra cotta, both inside and out. The outside, particularly in sunlight, is of unusual richness in tone. The inside is one of the most perfect examples of terra cotta construction ever produced. The lines, colors and gilding are ideal in all respects. The dome is weatherproof and will not sweat. The outside shell of the dome is constructed of steel, covered with cement, which in turn is covered by the terra cotta. The inside is a natural dome, built of terra cotta blocks without skeleton. The spandrels, cornices and arches below the dome proper on the inside are also built of terra cotta. The courthouse, of which William Kauffman is architect, is located at Greensburg, Pa. The terra cotta was executed by The Northwestern Terra Cotta Company.

ST. AMBROSE CHURCH, BROOKLYN.

GEORGE H. STREETON, ARCHITECT.

THE terra cotta decorations on the front of this building are of a character in accordance with the highest development of the use of this method of architectural treatment, both as to style and execution. The design has been carefully studied with the end in view of the adaptability of polychrome terra cotta for producing the desired architectural effects. The work has been kept mostly flat as to projections and relief, and the desired final results obtained by the rich colors of the terra cotta. Much of the ornament is very fine and rich and has been brought out by the use of three and sometimes four colors on a single piece. The figure panels (of which there are several), the ornamental corner pilasters and the main cornice are extremely rich in effect and are most successful as showing what can be accomplished by the proper employment of polychrome terra cotta. This building is sure to prove a stimulus in the matter of creating an in-



ADMINISTRATION BUILDING, CITY HOSPITAL, ST. LOUIS. James A. Smith, Architect.
Terra Cotta by St. Louis Terra Cotta Co.

creasing demand for this kind of material. The terra cotta was made by the Atlantic Terra Cotta Company at their plant

at Rocky Hill, New Jersey.

NEW BOOK.

ANALYSIS OF MIXED PAINTS, COLOR PIGMENTS AND VARNISHES. By Clifford Dyer Holley, M. S., Ph. D., New York: John Wiley & Sons.

Each method given in this work has been tested out in the author's laboratory and its working

value thoroughly demonstrated. The various analyses given are believed to be representative of the composition of the pigments they illustrate, and it is hoped that they will be of service in enabling the analyst to pass on paint products with fairness to both the manufacturer and the consumer.

IN GENERAL.

W. R. B. Willcox, formerly of Burlington, Vt., and W. J. Sayward, until recently connected with the office of McKim, Mead & White, have formed a co-partnership for the practice of architecture and located at Seattle, Wash. Their offices are in the Arcade Annex.

J. F. Sheblessy, architect, formerly of Louisville, Ky., has formed a copartnership with S. E. Desjardins, under the firm name of Desjardins & Sheblessy, offices, Fourth National Bank Building, Cincinnati, Ohio.

SCHOOL OF ARCHITECTURE UNIVERSITY OF PENNSYLVANIA

The Four Year Course. Full professional training (with an option in Architectural Engineering) leading to the degree of B. S. in Architecture. Advanced standing is offered to college graduates or the two degrees of A. B. and B. S. in Architecture can be taken in six years.

The Graduate Year affords opportunity for advanced work in design and other subjects of the course leading to the degree of M. S., in Architecture.

The Two Year Special Course. For qualified draughtsmen. Offers advanced technical training with a Certificate of Proficiency.

For Full Information address Dr. J. H. Penniman, Dean of the College, University of Pennsylvania, Philadelphia.

POSITION WANTED—Architect, 28, University graduate, experienced in practical office work and superintendence, returning from foreign travel and study, wishes permanent engagement, with future prospects as superintendent of construction, practical business manager or representative with architect or construction company. Address University Graduate, care THE BRICKBUILDER.

POSITION WANTED by architectural draughtsman with special college training and ten years' office experience in designing and detail work in both the East and the West. Would like position where there is opportunity for advancement. Can furnish the best of references. Address "Indiana," In care of "THE BRICKBUILDER."



JEWISH TEMPLE, COLUMBUS, OHIO.
Jacob S. Goldsmith, Architect.
Built of "Ironclay" Brick.



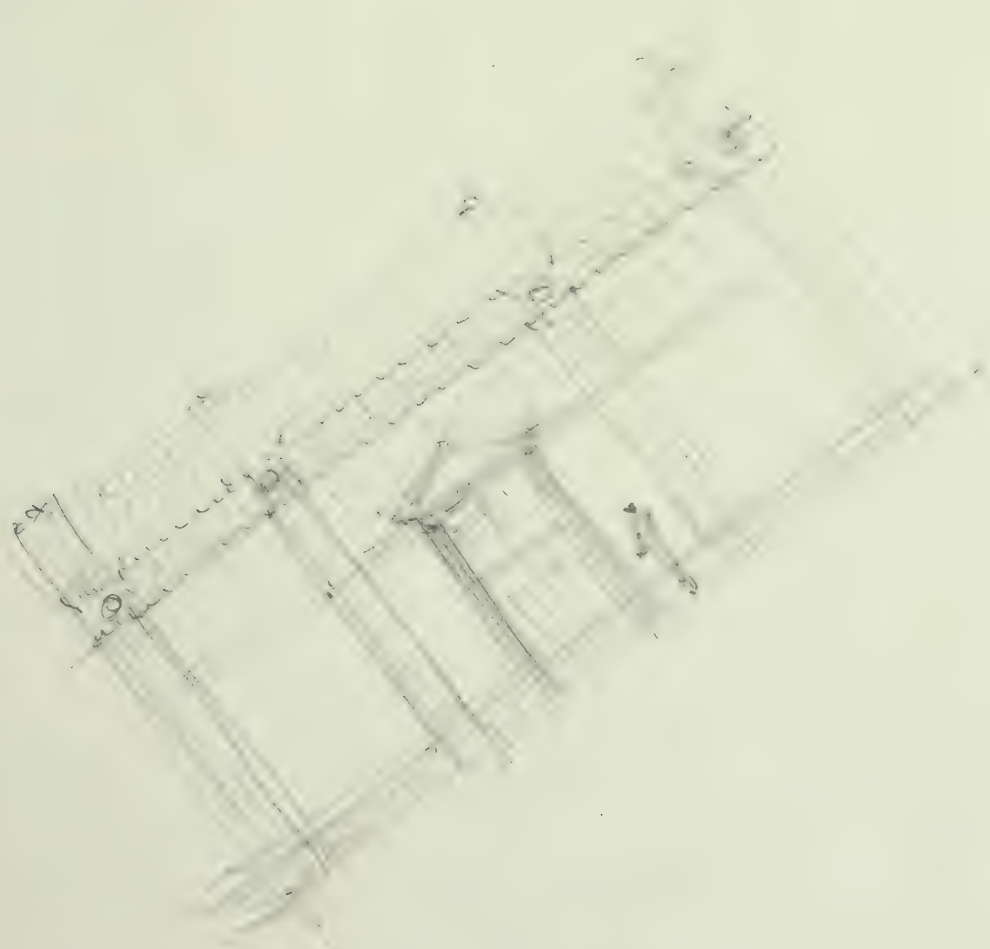
DETAIL BY SOUTH AMBOY TERRA COTTA CO. E. G. Southey, Architect.

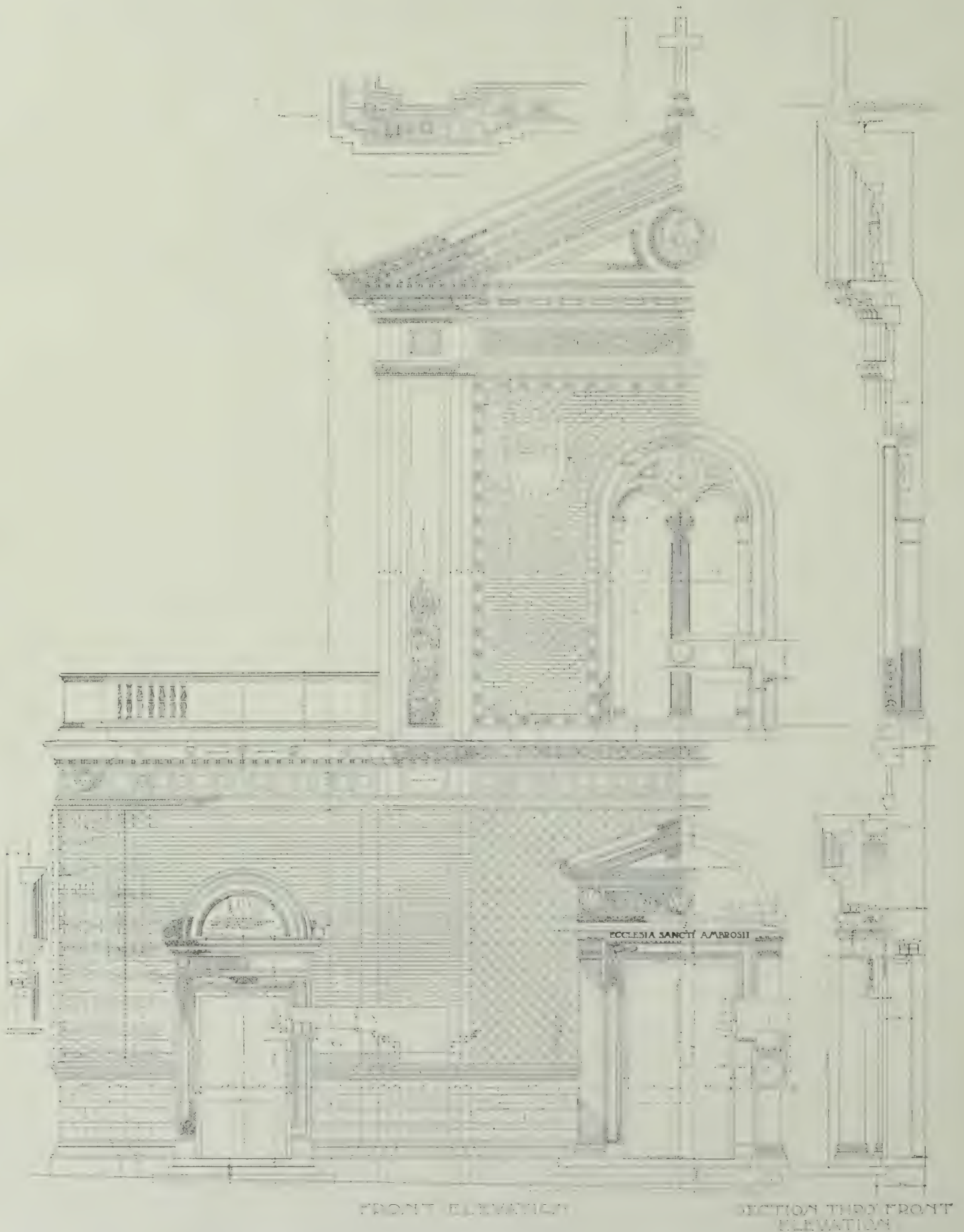


ST. AMBROSE R. C. CHURCH, TOMPKINS AVE., BROOKLYN, N. Y.
GEORGE H. STREETON, ARCHT.

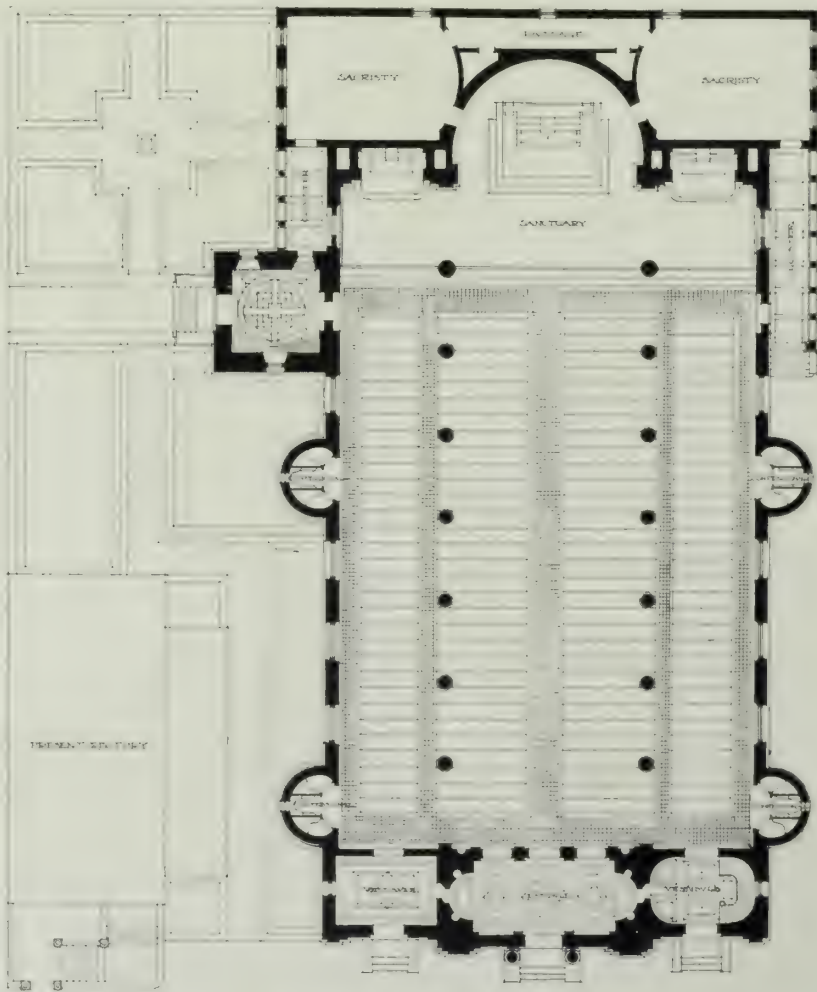
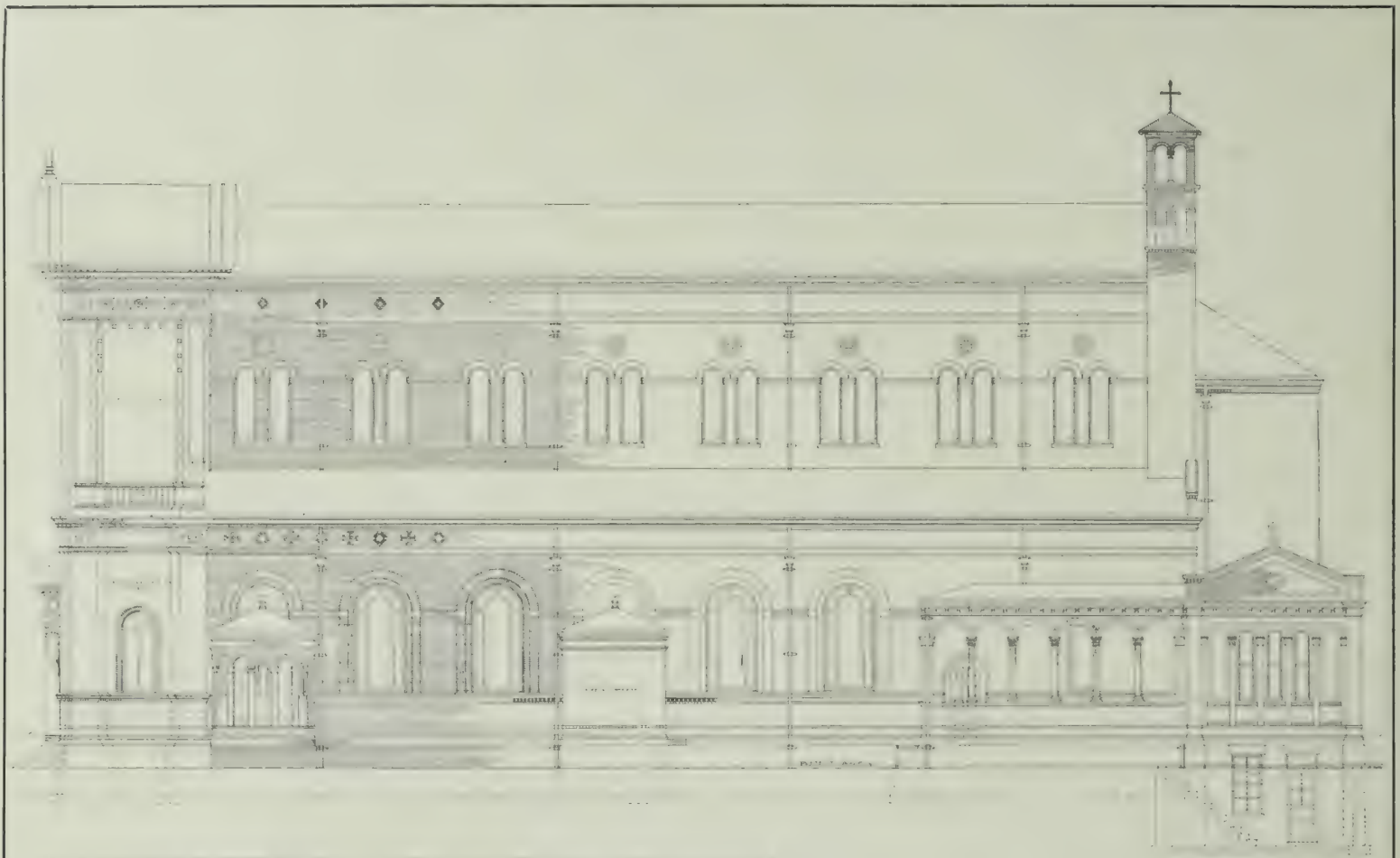


ST. AMBROSE R. C. CHURCH, TOMPKINS AVE., BROOKLYN, N. Y.
GEORGE H. STREETON, ARCHITECT.





ST. AMBROSE R. C. CHURCH, TOMPKINS AVE., BROOKLYN, N. Y.
GEORGE H. STREETON, ARCHITECT.



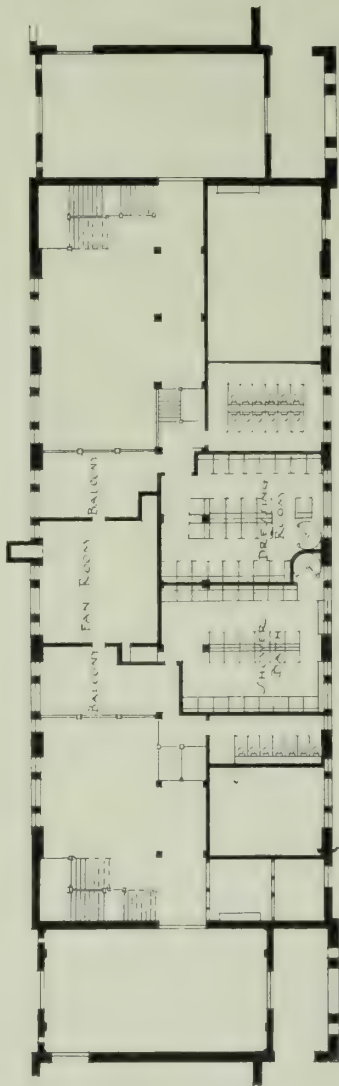
SIDE ELEVATION
AND
FIRST FLOOR PLAN,
ST. AMBROSE R. C. CHURCH,
BROOKLYN, N. Y.

GEORGE H. STREETON
ARCHITECT.

PLAN OF ST AMBROSE R.C CHURCH
BORO OF BROOKLYN N.Y.C.
SCALE 1/4" = 1'-0"



COMMON BUILDING.
GYMNASIUM FLOOR PLAN.

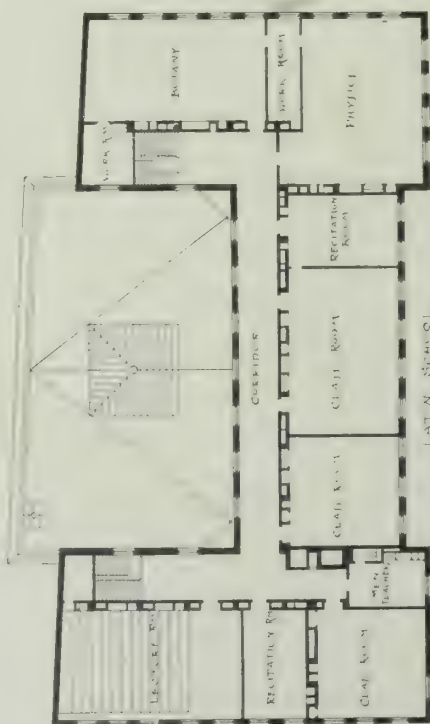


COMMON BUILDING.
MEZZANINE FLOOR PLAN.

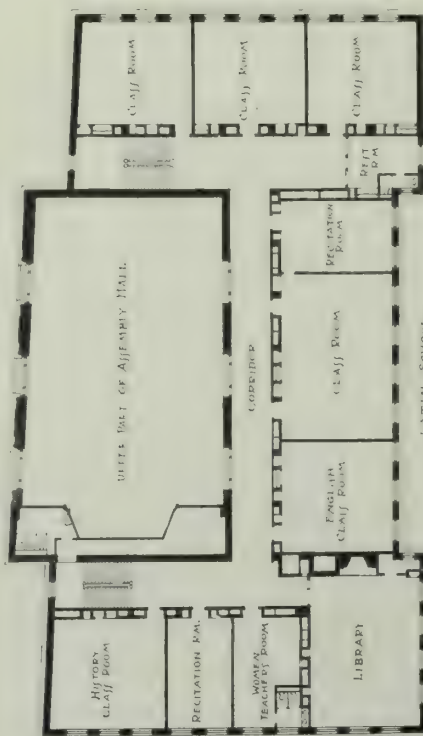


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COMMON BUILDING.
FIRST FLOOR PLAN.

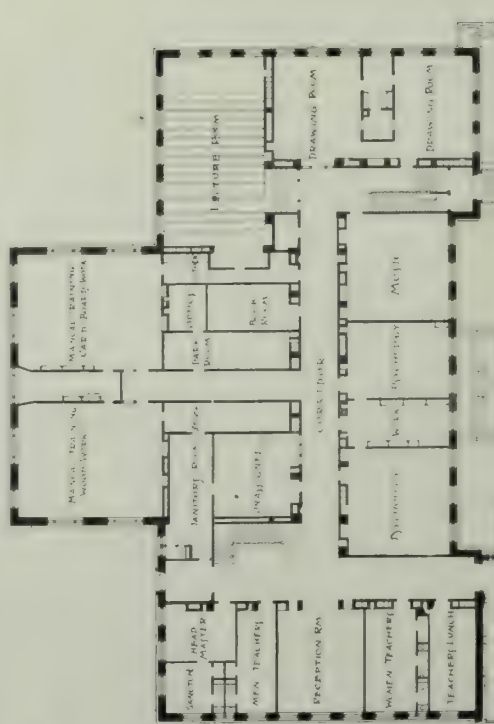
PLANS, NORMAL AND LATIN SCHOOL GROUP, BACK BAY FENS, BOSTON.
PEABODY & STEARNS, MAGINNIS, WALSH & SULLIVAN, COOLIDGE & CARLSON, ASSOCIATED, ARCHITECTS.



LATIN SCHOOL.
THIRD FLOOR PLAN.

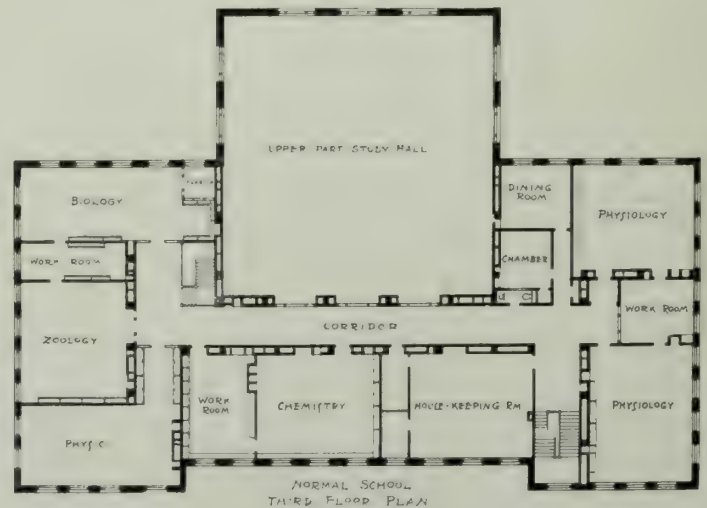
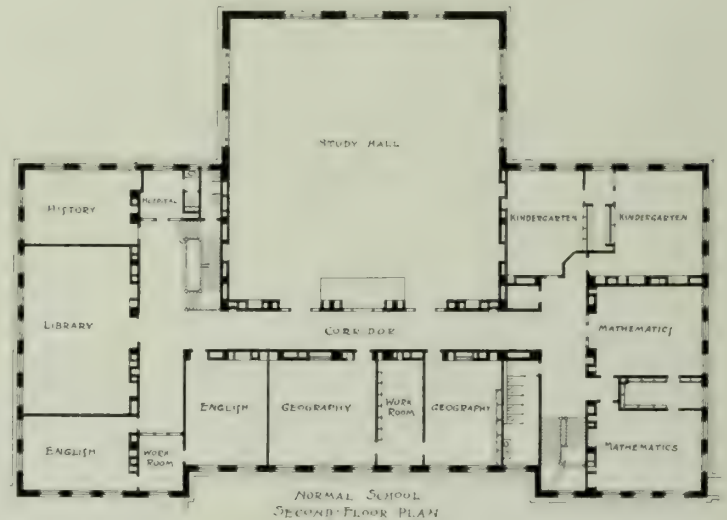
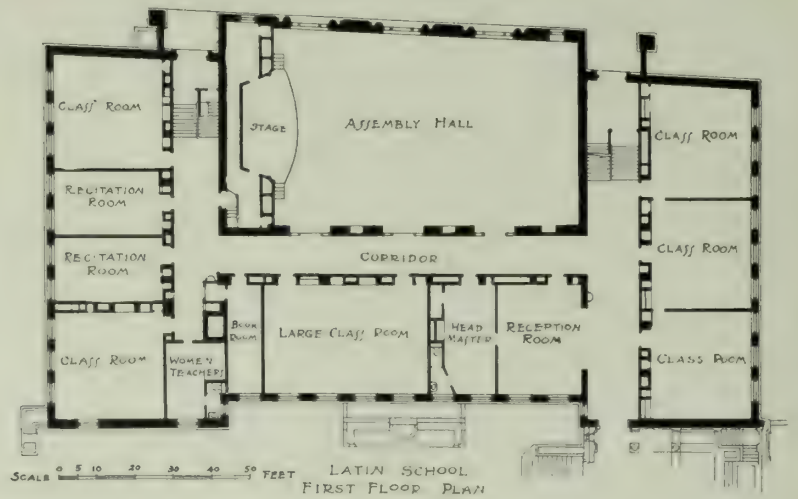
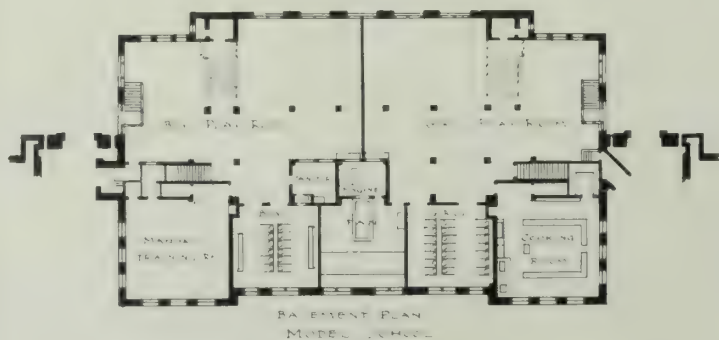
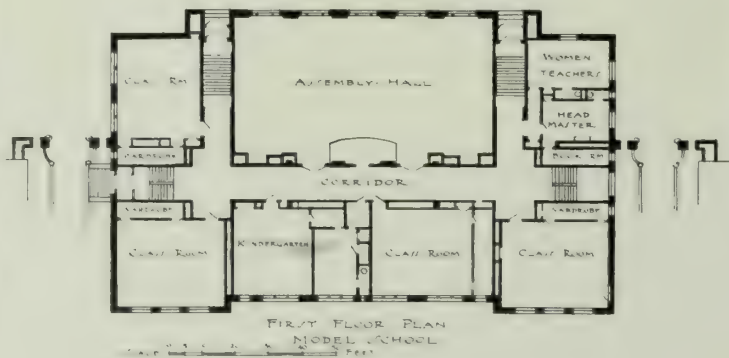
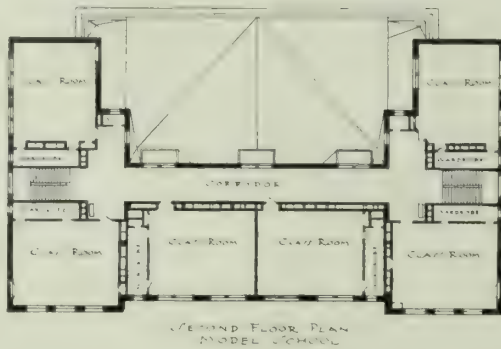
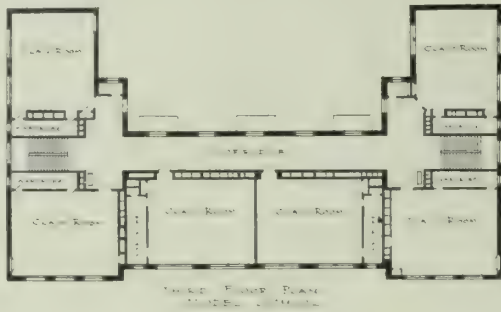


LATIN SCHOOL.
SECOND FLOOR PLAN.

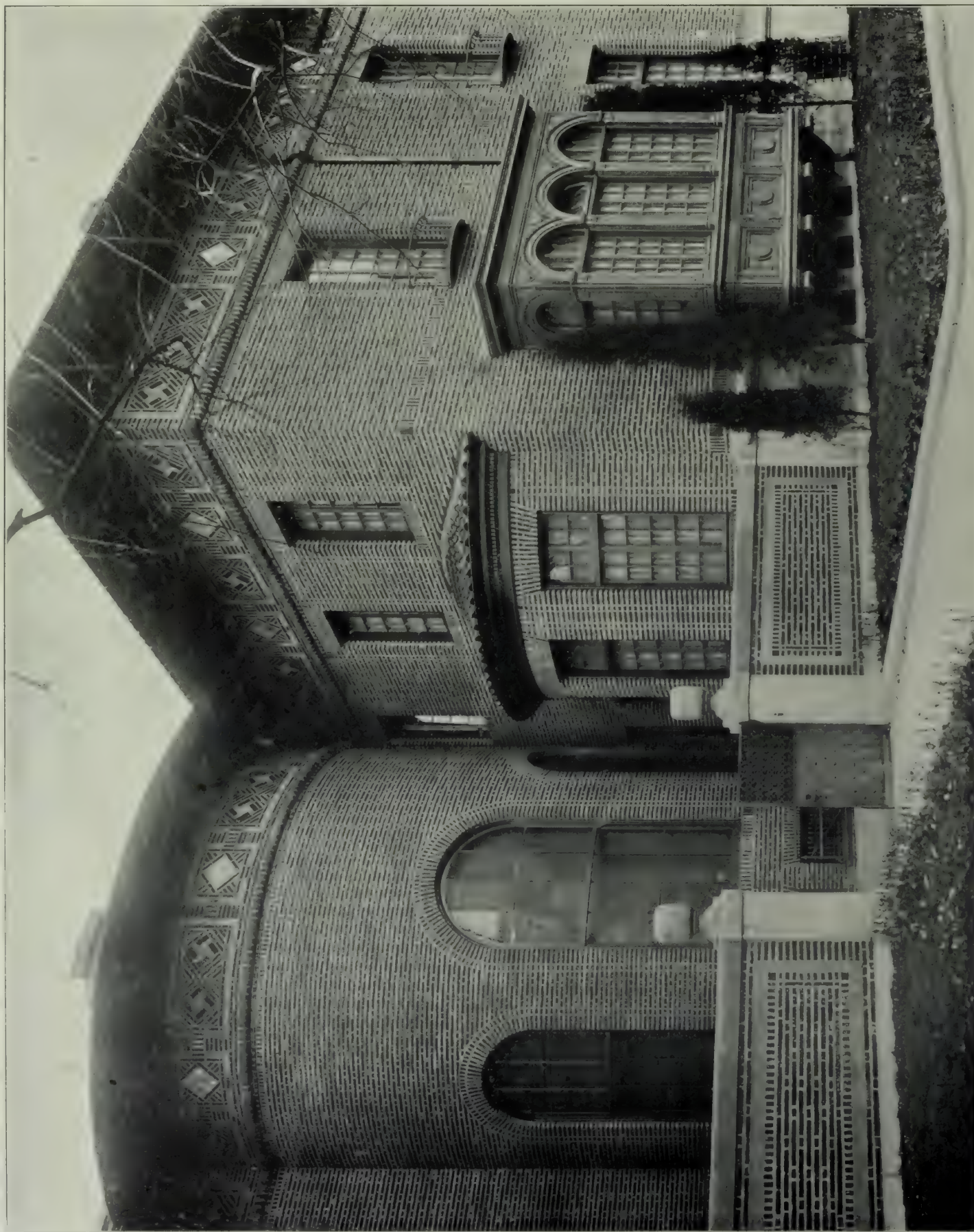


LATIN SCHOOL.
FIRST FLOOR PLAN.

SCALE 0 5 10 20 30 40 50 FEET



PLANS, NORMAL AND LATIN SCHOOL GROUP, BACK BAY FENS, BOSTON.
PEABODY & STEARNS, MAGINNIS, WALSH & SULLIVAN, COOLIDGE & CARLSON, ASSOCIATED, ARCHITECTS.

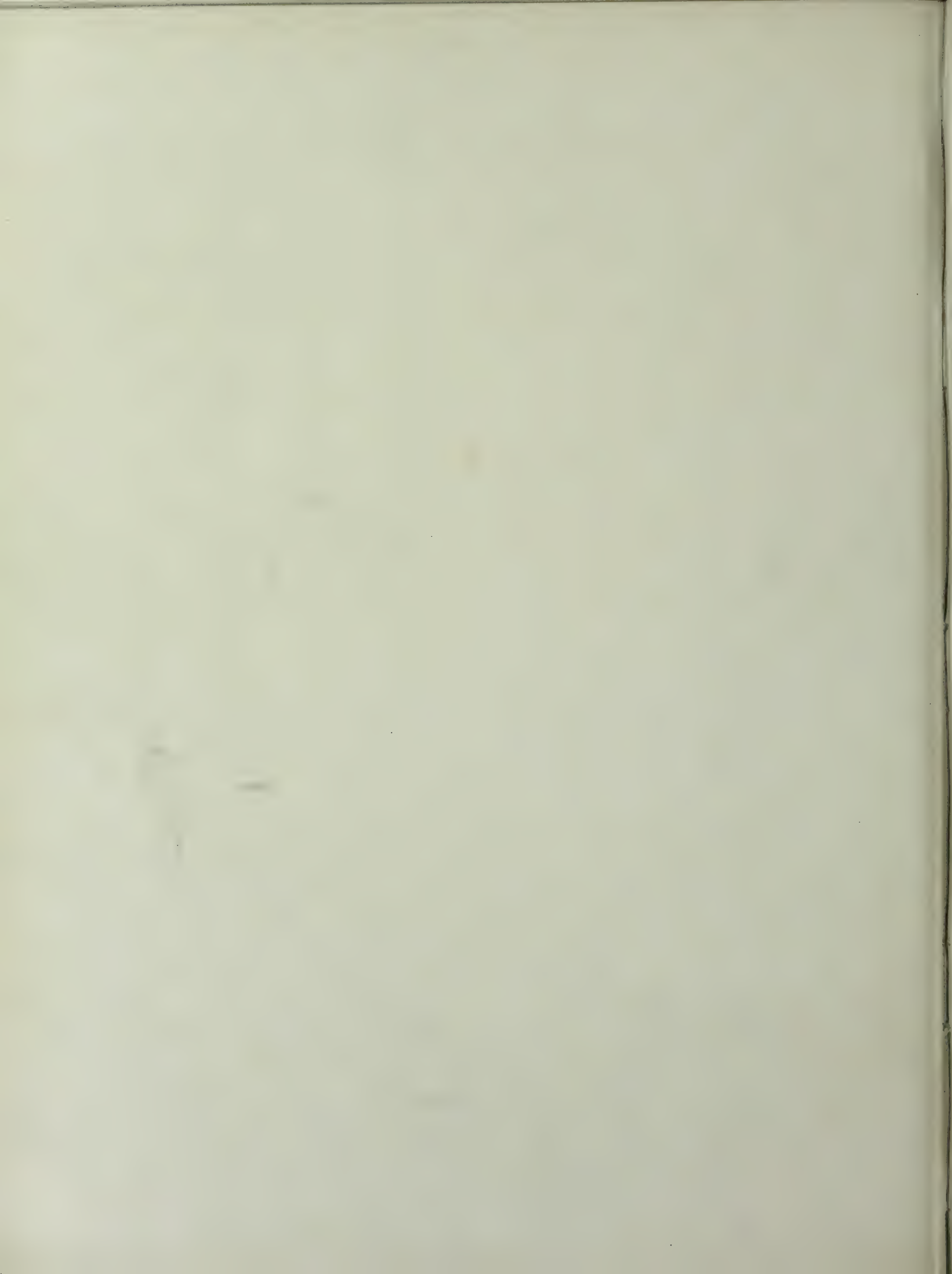


HOUSE FOR JOHN R. McLEAN, ESQ., WASHINGTON, D. C.

JOHN RUSSELL POPE, ARCHITECT.

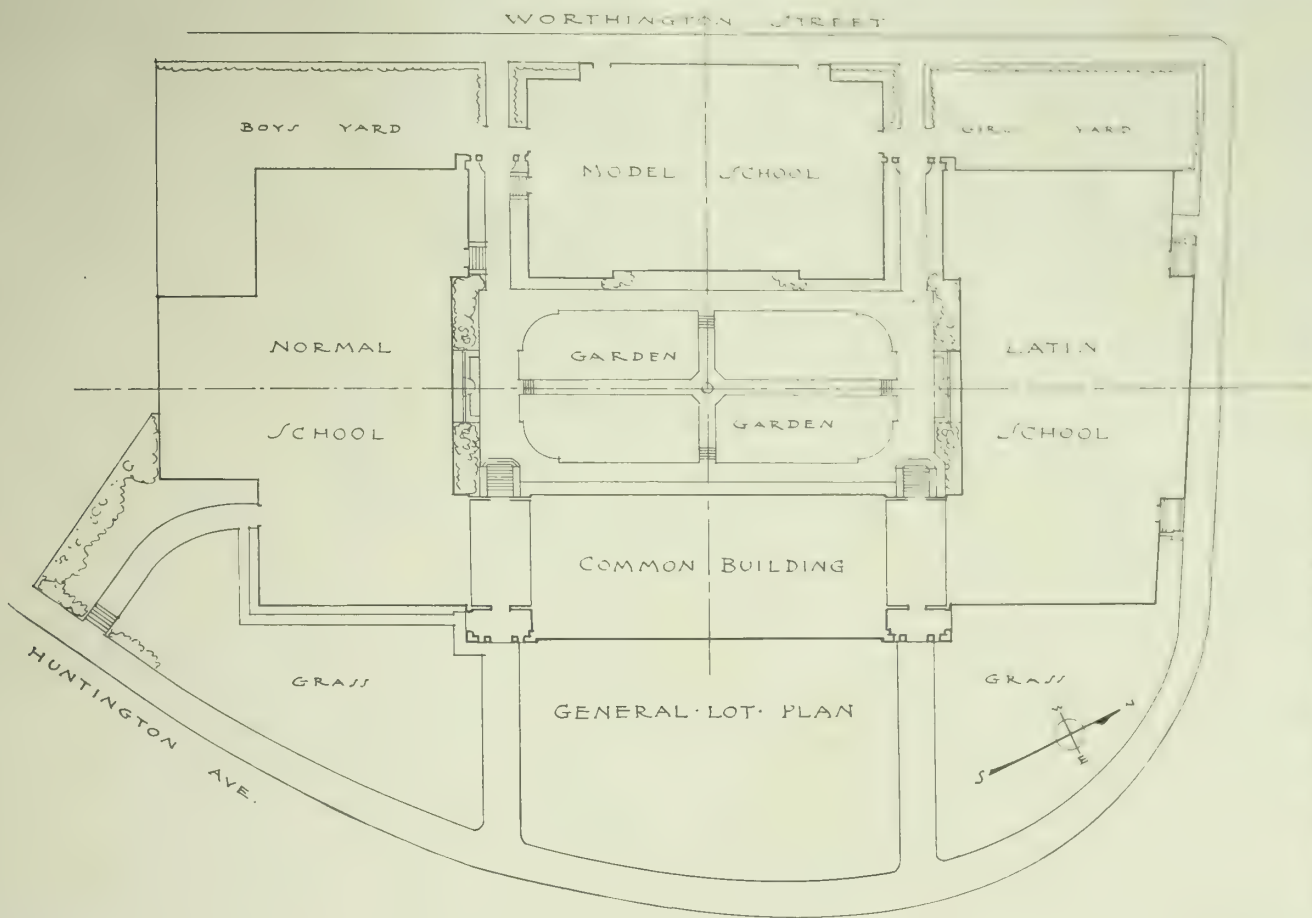


HOUSE FOR JOHN R. MCLEAN, ESQ., WASHINGTON, D. C.
JOHN RUSSELL POPE, ARCHITECT.





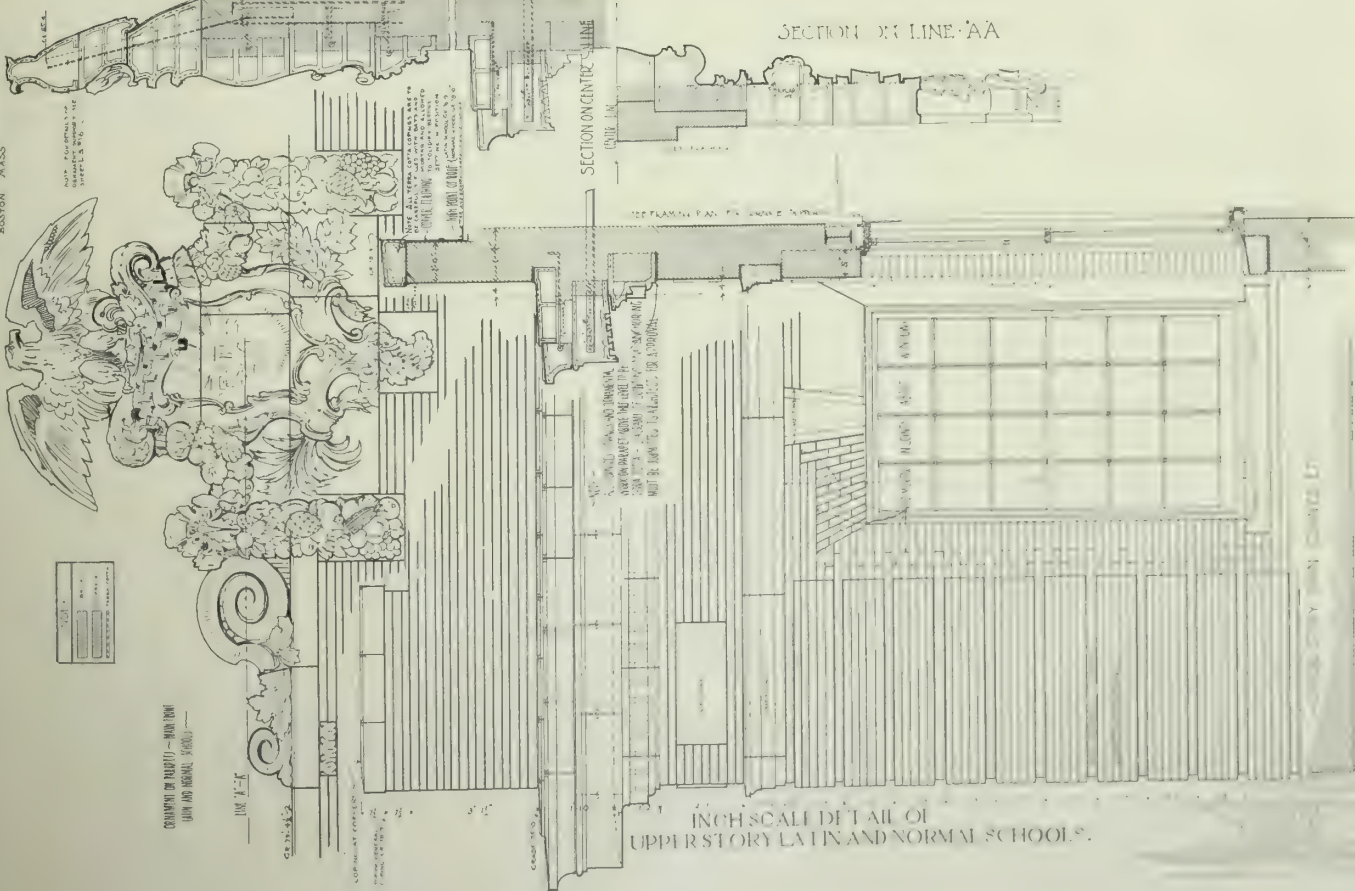
HOUSE FOR JOHN R. McLEAN, ESQ. WASHINGTON, D. C.
JOHN RUSSELL POPE, ARCHITECT.

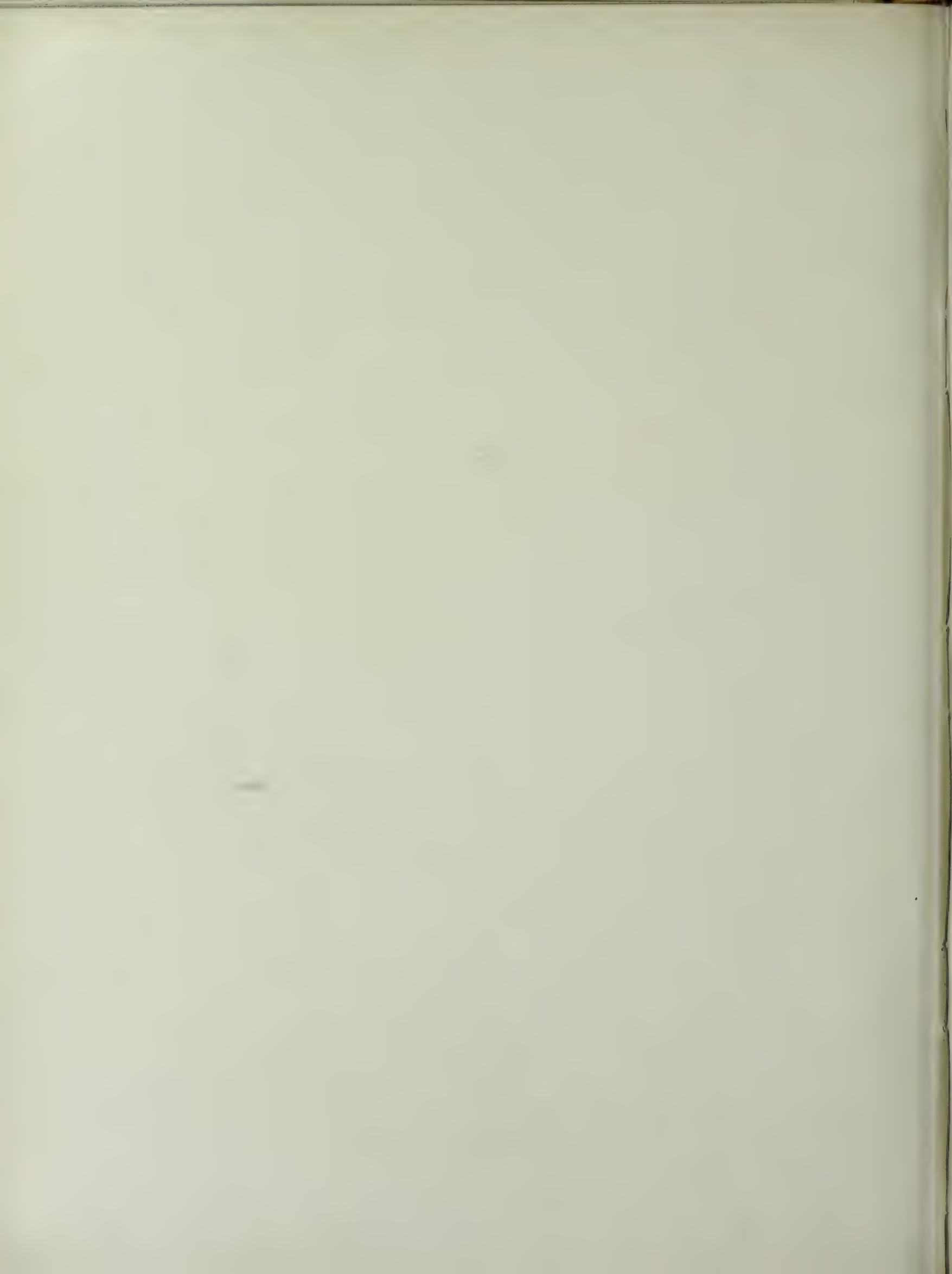


DETAIL OF UPPER STORY AND BLOCK PLAN
NORMAL AND LATIN SCHOOL GROUP, BACK BAY PENS, BOSTON

PEABODY & STEARNS, ARCHT'LS, WALTHAM & SULLIVAN, CIVIL ENGRS & CONSL'GS, BOSTON, MASS.

PEABODY & STEARNS, ARCHT'LS, WALTHAM & SULLIVAN, CIVIL ENGRS & CONSL'GS, BOSTON, MASS.

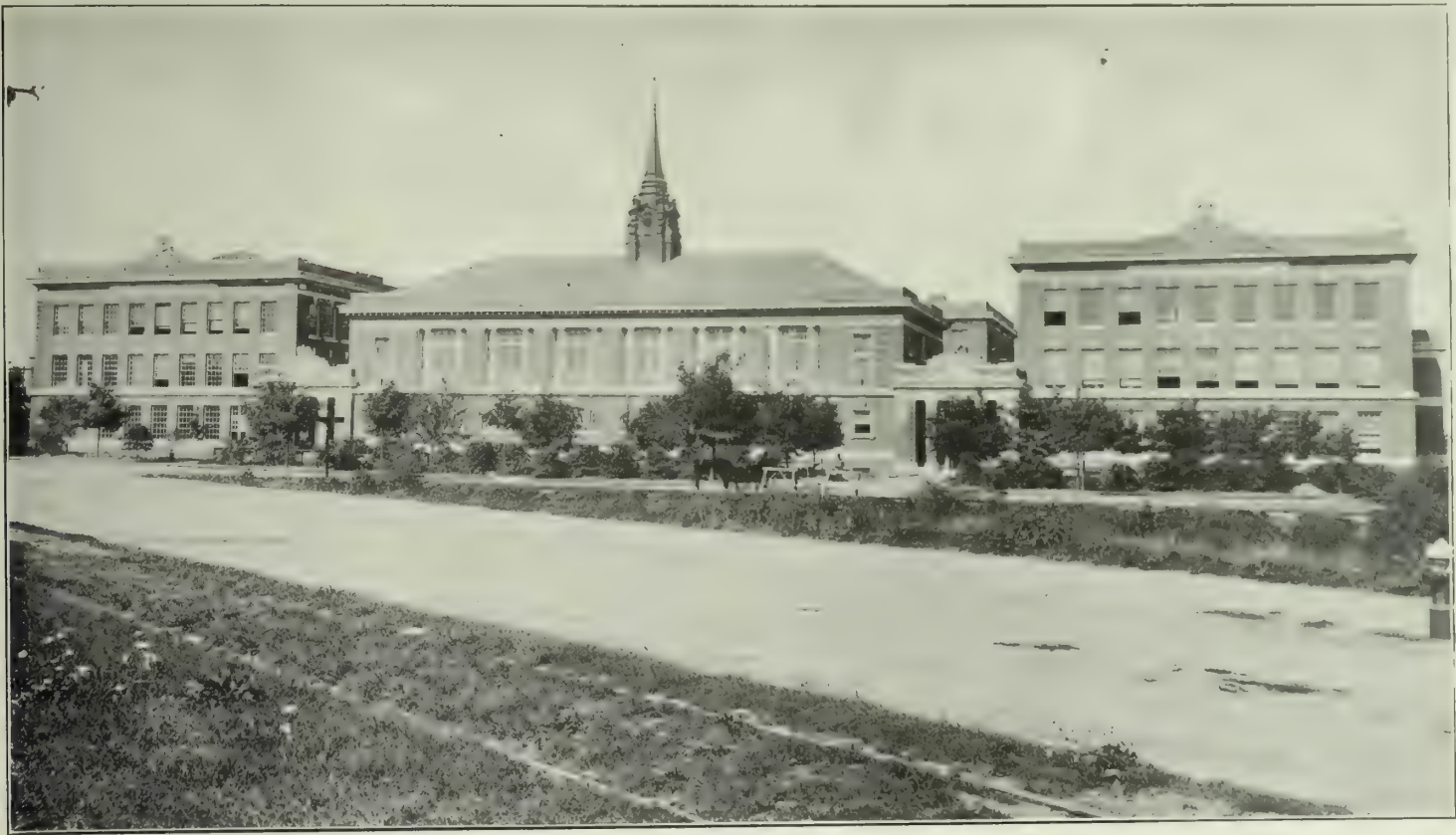




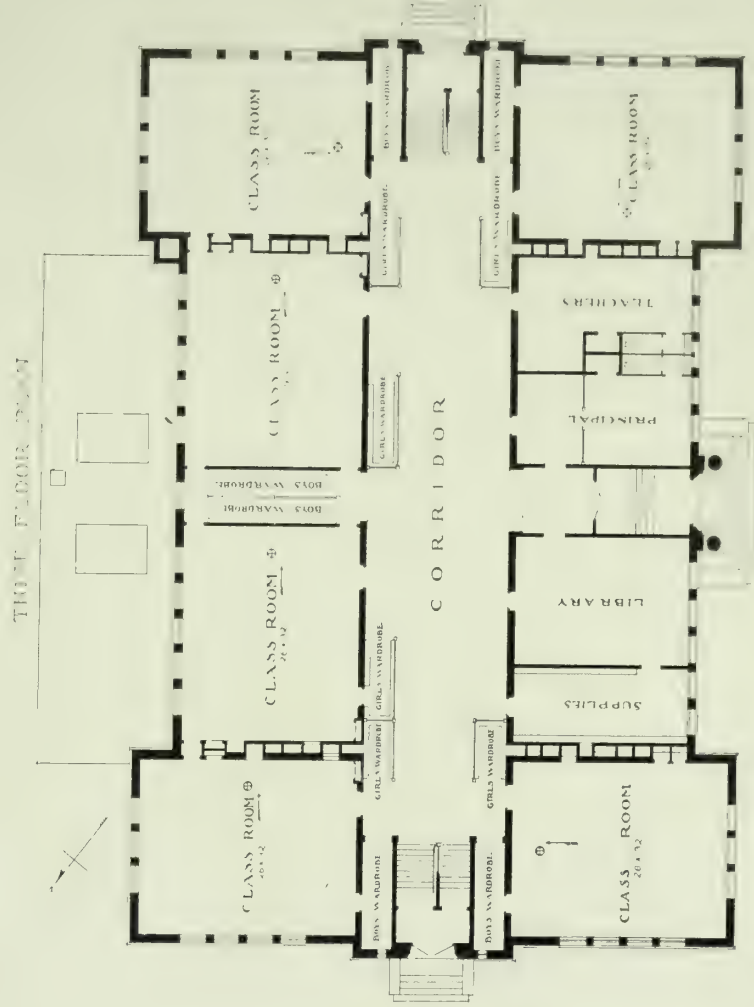
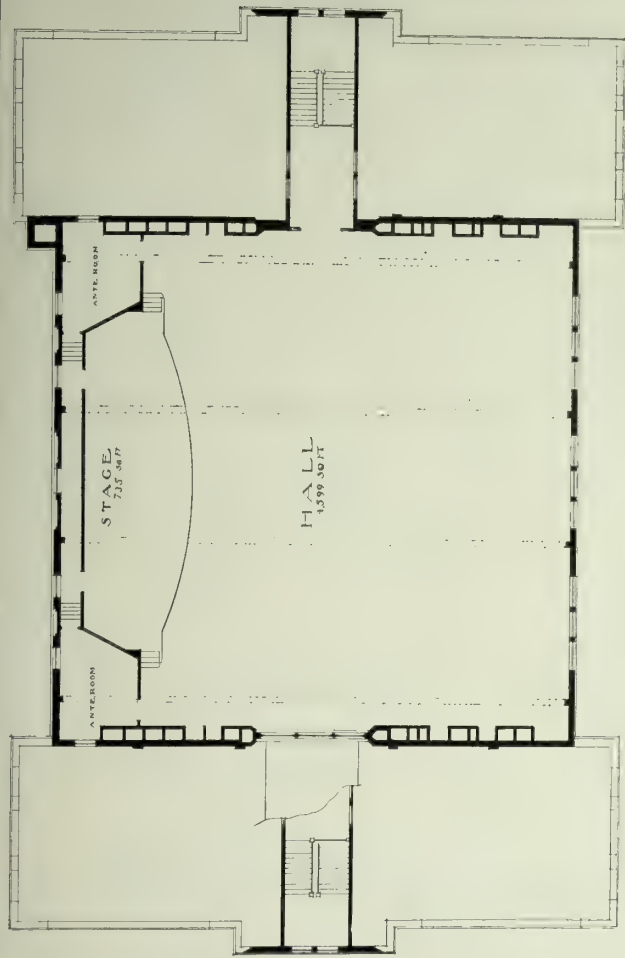


NORMAL AND LATIN SCHOOL GROUP, BACK BAY FENS, BOSTON.

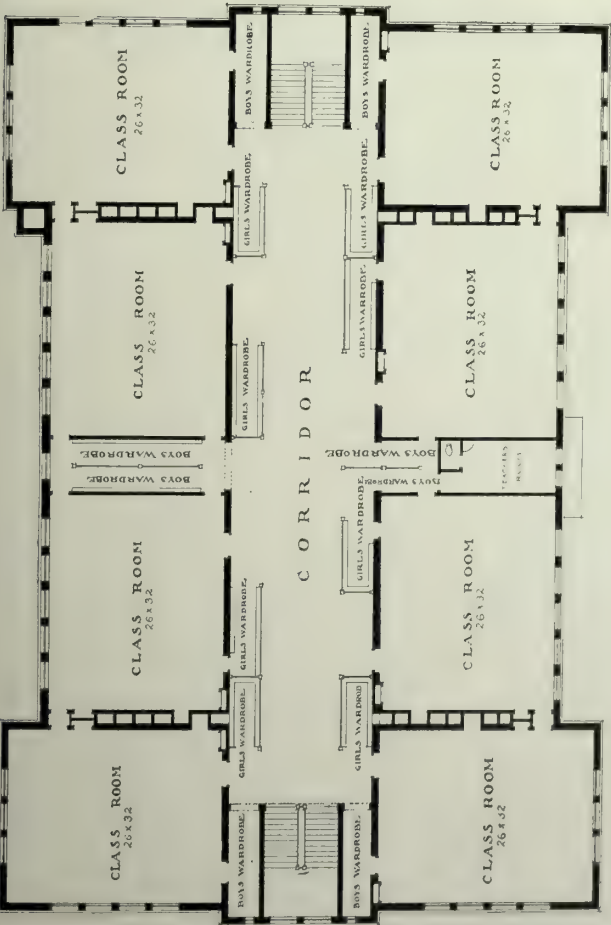
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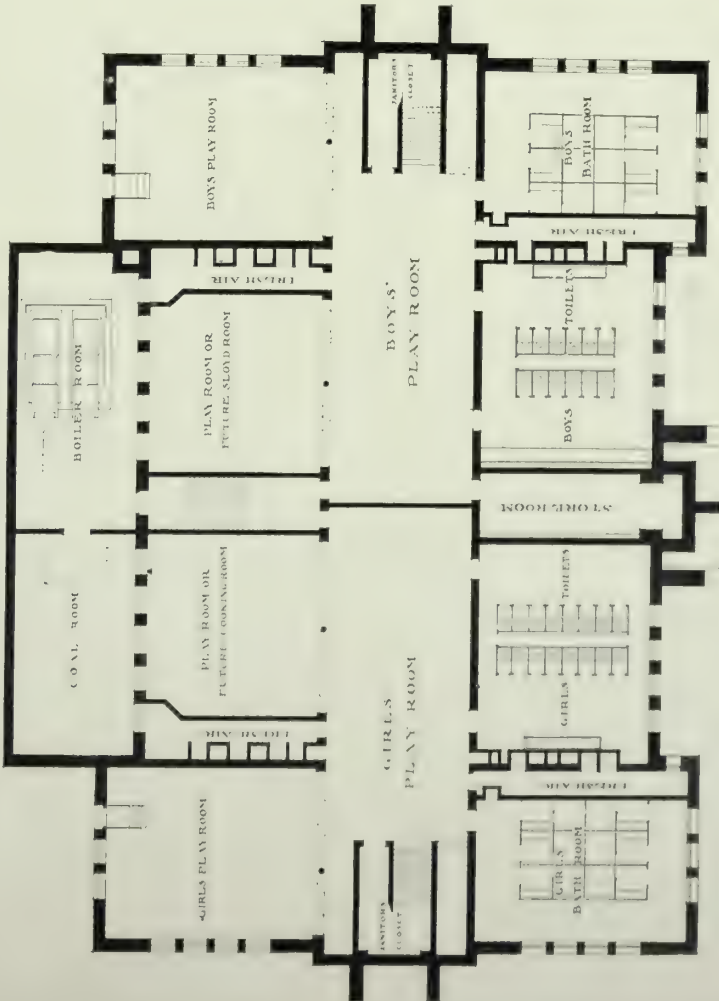
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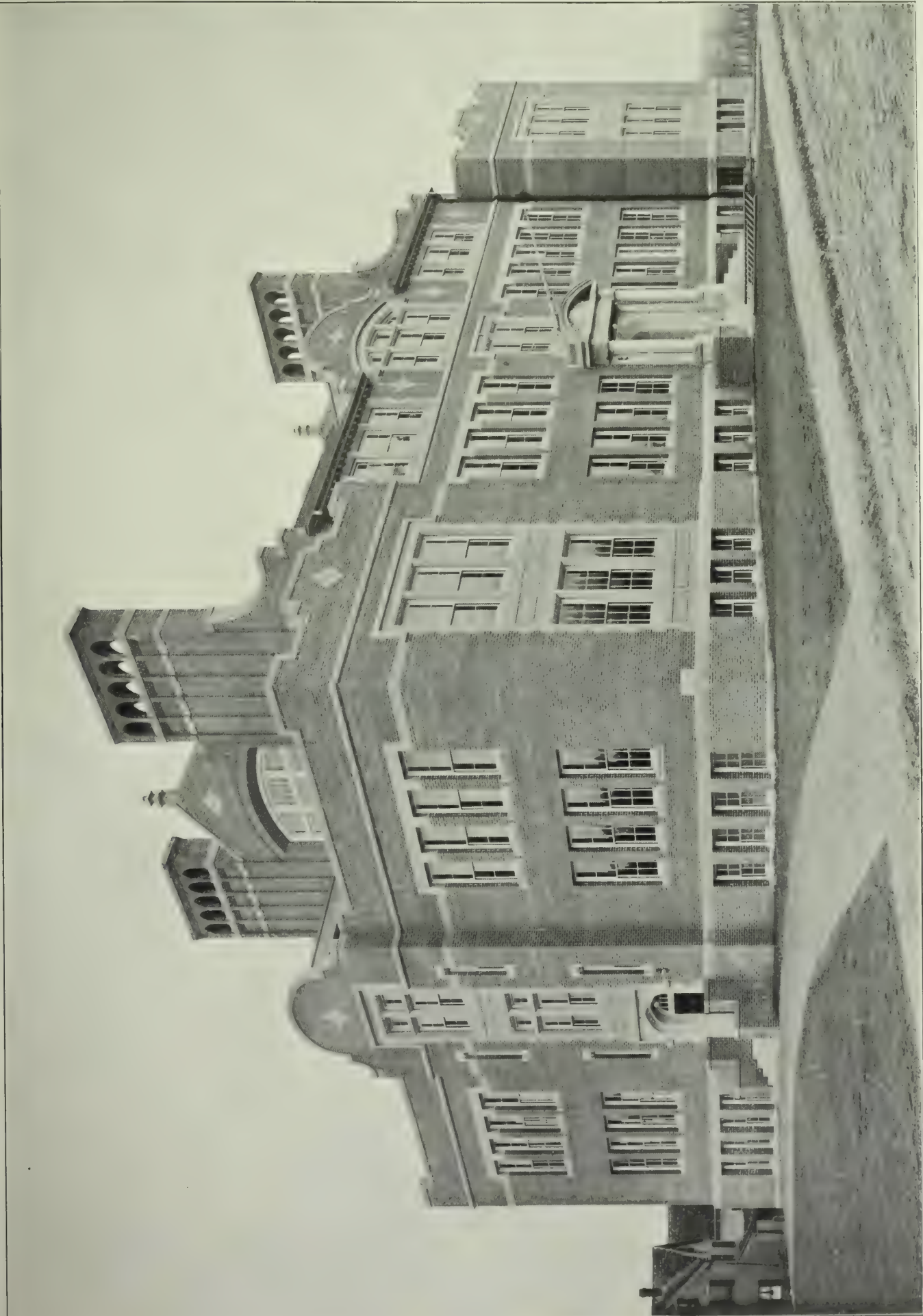


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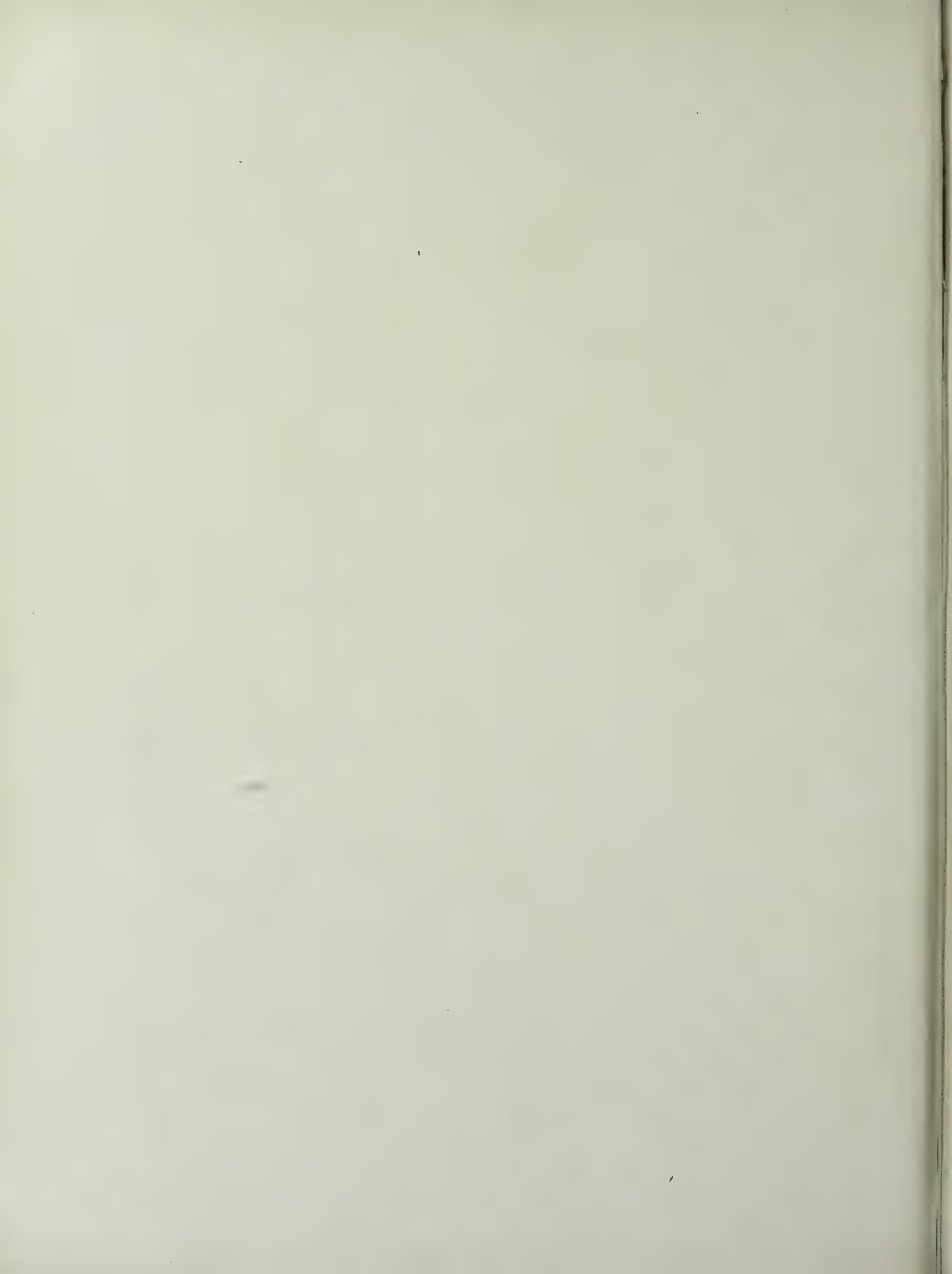


BASEMENT FLOOR PLAN

CHARLES A. DANIELS SCHOOL, MALDEN, MASS.
BRANERD & LEEDS, ARCHITECTS.



CHARLES A. DANIELS SCHOOL, MALDEN, MASS.
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THE BRICKBUILDER

VOLUME XVII

APRIL 1908

NUMBER 4

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SOUTH PORTAL, CHURCH OF ST. STEPHAN, TANGERMÜNDE, GERMANY.

THE BRICKVILDER

VOL. 17 NO. 4

DEVOTED TO THE INTERESTS OF ARCHITECTURE IN MATERIALS OF CLAY

APRIL 1908

The American Theater—V.

HEATING AND VENTILATION.

BY CLARENCE H. BLACKALL.

THERE are two theories accepted by engineers in regard to the heating and ventilating of a hall of audience. One starts with the assumption that the fresh air should be introduced into a hall either through the ceiling or on the side walls at a considerable height above the floor, this air, when cooling, becoming heavier and hence dropping to the floor level, whence it should be drawn off by exhaust ducts, either in the floor itself or in the base at the floor line. This theory further asserts that the air near the floor, always being colder than the air at a higher level, must necessarily be drawn out, in order to keep the lower part of the hall comfortably warm. The second theory starts on the assumption that the emanations from a crowd of people, from electric and gas lights, are always highly heated in relation to the incoming air, and would, therefore, naturally ascend to the top of the ceiling, whence they should be drawn off at once, in order to preserve the purity of the air of the hall. In this system, it follows that the fresh air is introduced at the floor level, and the exhaust is entirely at the top. The first theory disregards the heated emanations from the human body, drawing these downward along with the fresh air, and thus compelling the spectator to breathe the mixture, in order to get any fresh air at all. The second system gets rid of the contaminated air at once, at the expense of carrying along with it a considerable amount of fresh air entering from below.

The first solution is essentially academic; the second is essentially practical. The best evidence in the world that the air in the top of the room is always the foulest is afforded by one's nose, and no amount of theory can disguise the fact that even under the best circumstances, the air is apt to be worse in the gallery than on the ground floor. There is never any difficulty in heating an audience room as far as mere temperature is concerned. The difficulty is always to get rid of impurities quickly and without causing drafts. By the overhead introduction system, if enough air is brought in, and the inlets are distributed sufficiently over the entire ceiling, the air of the entire hall can undoubtedly be changed completely so as to insure a suitable supply of fairly fresh air to every spectator, but this is accomplished at a large expense, with a loss of efficiency, and it is extremely difficult with this system to avoid drafts. There is a good example of this system in one of the most prominent halls in this country, the heating and ventilation of

which was designed by and carried out under the supervision of one of the most eminent New York engineers. The air is taken in at the top of the hall, and drawn out through registers in the floor of the parquet, the motion of the air being forced by an inlet and an outlet fan. The installation was a very expensive one in first cost, and proved expensive in maintenance. From the very opening of the hall complaints were made of drafts. To remedy this, more than half the ceiling registers were closed, the speed of the fan was cut down one-half, and finally half of the plates of the inlet fan were removed, but even then there were found to be drafts and the ventilation was far from perfect. It is the belief of the writer, based upon the most careful examination of existing halls in this country and abroad, that the downward system of heating and ventilation is seldom wholly satisfactory and is often absolutely impractical when applied to a large hall, entailing unnecessary expense, and being most uncertain in operation. The other system has been almost invariably found to work satisfactorily under varying conditions, to give uniformity of temperature, with ample change of air, and to require little care when properly installed and automatically controlled.

The building laws of several of our large cities prescribe a minimum supply per minute of twenty-five cubic feet of fresh air for each person accommodated in a hall of audience. For an overhead system this might be even insufficient, but for a properly arranged natural system, with supply below and exhaust above, this has been found in practice to be altogether too much. With a proper arrangement of the plant, ten cubic feet of air per person per minute is all that can safely be introduced into a hall and is sufficient to secure perfect heating and ventilation throughout. The writer has yet to find an installation actually supplying much more than this. When provision has been made for a greater supply the quantity is almost invariably cut down very materially in daily use. Ten feet per minute per person is full enough if it really is distributed so as to be available for each person, while a hall might be wretchedly ventilated which had a supply equal to twenty-five or even fifty feet per minute, if that supply were simply allowed to enter at one point and go out at another, without adequate distribution. Furthermore, no plant can be made perfect on paper. Air does not always go where it is sent even with a fan behind it, and even the most intel-

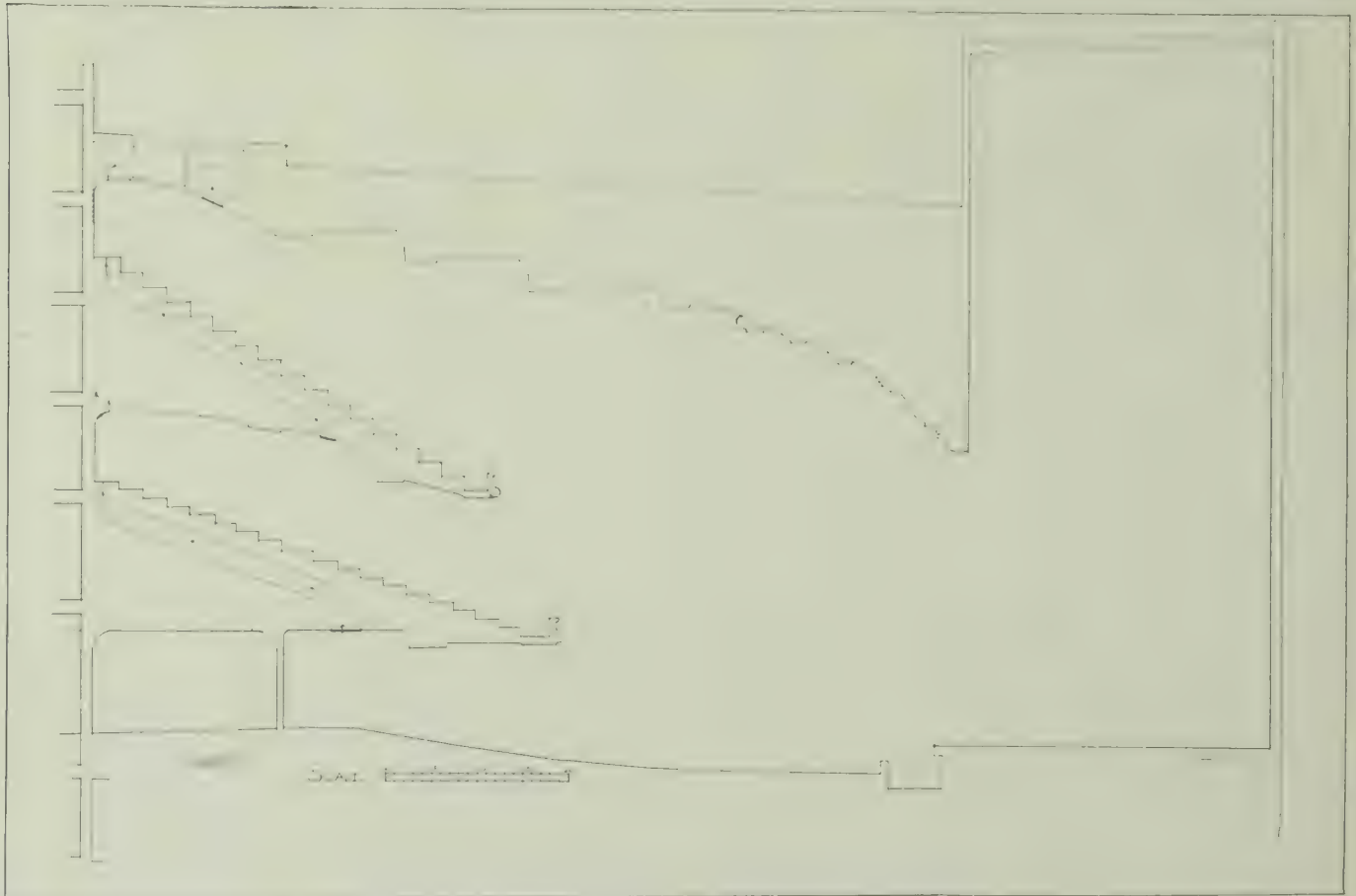
lightly devised system requires careful adjustment in operation, for the essential condition is uniformity of distribution, and anything like a by-pass of air currents or unequal velocities through the ducts is apt to make success impossible.

For the purpose of illustrating more specifically the upward system of ventilation, the Colonial Theater, in Boston, will be taken as an example. The air is introduced from out of doors into a basement chamber. Local conditions are such that no filtering or straining of the air was considered advisable. Beyond this entrance chamber the air is carried either through a series of steam-heating pipes or around the same by suitable by-pass, to a fan chamber, whence the air is forced into the space under the main orchestra, the whole of which is

ating the steam supply to the coils beyond the fan, and also operating the by-pass valves. It has been found most satisfactory to introduce this air at a temperature of between sixty-five and seventy degrees, or about the temperature desired in the hall itself.

From the heating chamber, air escapes into the auditorium through openings in the floor connected to small chambers formed in the legs of the seats, each seat thus having a supply. This is a convenient way of masking the air inlets. Another practice is to carry a three-inch round pipe up under the center of the seat, capping it with a low, bell top, raised an inch or two above the floor. The results in either case are essentially the same.

It is not enough, however, to introduce air to the



HEATING AND VENTILATION, MAJESTIC THEATER, BOSTON.

utilized as a distributing or plenum chamber. The air is introduced to this chamber through a single, large galvanized iron duct, but inside the wall the duct is split up into a number of smaller pipes so arranged that the air will surely be carried to all portions of the heating chamber under uniform pressure. A better practice would be to divide this space by brick partitions into not less than three sections, and better six, carrying separate air pipes to each section; these pipes being regulated by dampers, so that uniform pressure will be maintained in each chamber. The object, of course, is to make sure that the air will not take a by-pass, but that the warm air issuing into the audience room will enter everywhere with equal velocity.

The temperature of the air is controlled by thermostats placed in various portions of the auditorium, oper-

ating the steam supply to the coils beyond the fan, and also operating the by-pass valves. It has been found most satisfactory to introduce this air at a temperature of between sixty-five and seventy degrees, or about the temperature desired in the hall itself.

This constitutes the entire supply system for the auditorium. The total area of the supply ducts is proportioned on a rate of delivery through the outlets of not over five feet per second. For the exhaust, a row of outlets is arranged around the center of the ceiling, and also larger registers in the ceiling at each side and the center, over the rear of the gallery. All these openings connect directly into the air space immediately over the auditorium. To ventilate the pocket under the balcony, registers are introduced into the ceiling and exhaust pipes carried to the air space over the gallery. This

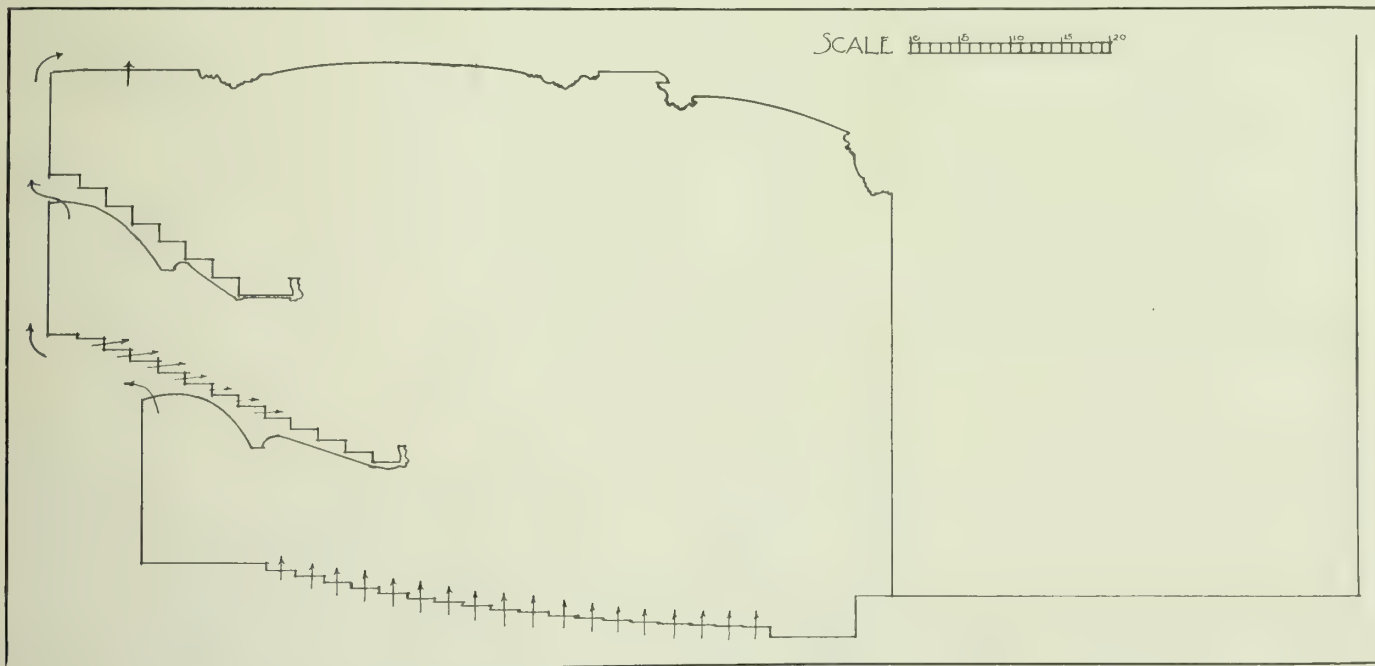
air space in turn is divided into cross sections by the lines of steel girders, and these sections are all connected at one end to an exhaust chamber from which a fan draws air and delivers it to a discharge duct carried above the roof.

The area of the exhaust registers in this case was made somewhat larger than the area of the inlets. It is believed that slightly better results could be obtained if the area of the outlet registers were smaller, by, say, five per cent, than the combined area of the inlets. It is well to maintain a slight plenum in an auditorium, thereby checking any tendency to drafts inward from the vestibule doors. Also in operation great care has to be taken to properly balance the speed of the two fans above and below, so that the draft of the up fan will be entirely from the heating chamber below, through the auditorium, and not draw on the foyers and corridors.

This system makes no provision for either washing or cooling the air, both of which are very desirable. At an

throughout an entire auditorium at an even temperature not varying more than two degrees anywhere.

Very often, however, the space under the parquet is claimed for dressing-rooms or storage. The second illustration shows the heating and ventilation recently installed under such conditions. The radiation is proportioned on the basis of 1 foot of heating surface to 100 cubic feet of space to be heated. Fresh air is introduced through twelve direct indirect radiators in side walls aggregating 520 square feet, and through two indirect stacks in main floor, one each side on line of the first box, each of 1,200 square feet. There are also 770 square feet of direct radiation. Such a system would be intolerable without the most thorough ventilation, especially as the audiences in this particular house are not of the highest type and may be allowed to smoke. In the ceiling over the standing-up space is a continuous exhaust register 3 feet wide by 48 feet long. Over the center of the balcony are three registers, each 16 by 36 inches, and over the



HEATING AND VENTILATION, COLONIAL THEATER, BOSTON.

expense of less than two thousand dollars an air washer can be installed outside of the main fan, which would give very satisfactory results. The least expensive way to cool the air is to keep the receiving tank of the air washer partially filled with ice, thereby using ice water to wash and consequently to cool the incoming air. When the expense is not an item, a more sure way is to use a refrigerating plant to pump cold brine through the pipes which are used in cold weather for the steam, but in the writer's practice the former method has been found the simplest and least expensive, while sufficiently effective. The cost of such cooling is approximately half the cost of heating the same quantity of air, or for an ordinary theater under ordinary conditions an average of ten dollars per performance.

The system described has been followed in principle in most of our American theaters where the space under the auditorium could be spared for a plenum chamber.

When properly handled and adjusted, thermostatically and otherwise, such a system can easily maintain the air

back of the balcony pocket a continuous register 12 inches by 14 feet. In the main ceiling, over the gallery, is a continuous register, 18 inches wide by 40 feet long. All of these registers are connected to galvanized iron ducts and extended, separately as much as practicable, to a 110-inch exhaust fan above the roof. The steam supply is controlled thermostatically and the velocities of air in the exhaust regulated by adjustable dampers.

It has been found in practice that two spots in an auditorium are apt to be cold: one, the orchestra pit at each end of the stage apron, and the other just in advance of the lines of the boxes on each side. Consequently, at each of these points it is well to put a certain amount of direct radiation. The same result has been accomplished by locating exhaust ducts near the floor to draw off the cold air.

In the old days when electricity was unknown it was quite essential to have an enormous exhaust ventilator over the central chandelier and highly desirable to arrange a special vent in connection with each gas jet.

But the introduction of electric light has, of course, changed all that.

The stage itself is usually heated by lines of 1½-inch circulation pipes carried entirely around three sides of the stage as far as possible and starting not less than six feet above the stage level. The amount of this radiation is largely a matter of judgment and of exposure. The total surface, however, should be on a ratio of not less than 1 square foot to each 200 cubic feet of space over stage floor behind the curtain, and, in many cases, twice that quantity might be insufficient. A good rule is to put in all one can, and see that the mains and returns are large enough to double it. The scantily attired artists on the stage seldom complain of the heat.

The ventilation of dressing rooms is accomplished in various ways. If, as is unfortunately often the case, the rooms have no outside light and air, a fresh supply of warmed air must be pumped to them and they must be connected to a system of forced exhausts. If they have

outside windows, the forced supply can be dispensed with, in which case the exhaust must be ample and positive. In any case the heating and ventilating of these rooms must operate independently of the auditorium, as the dressing-rooms are used a great deal when the house is unoccupied.

The heating and ventilating of other portions of a theater do not present any peculiar problems, other than are involved in heating and ventilating ordinary rooms or apartments. There are, of course, many variations from the system herein described, and each theater presents special problems which have to be studied and treated individually. The overhead system has never developed beyond the stage of interesting experiment. It can, of course, be made to work perfectly if space and first cost are not to be considered, but it requires such extreme care in planning, such discriminating exactness in adjustment, and piles up so large a coal bill in operation, that few owners will knowingly accept it.

The Public Bath—III.

THE AMERICAN TYPE.

BY HAROLD WERNER AND AUGUST P. WINDOLPH.

FROM 1850, the date of the introduction of the public bath in this country, and almost to the close of the century, but little attention was given to the subject of bath sanitation. Our American municipalities were either indifferent, or at any rate did not deem it imperative to establish a system of public baths. A few isolated buildings, of the river bath type, poor and crude imitations of European models, were in operation; also some primitive buildings equipped with shower baths.

To better appreciate the conditions at this time, some statistics taken in New York and Philadelphia are interesting. In the former city ninety-six per cent of the people of the tenement sections were entirely unprovided with bath facilities, and Philadelphia showed eighty-two per cent unprovided for; in one section containing two hundred and fifty-five thousand people only three hundred people had proper bathing facilities. The cities of the second class and towns were but little better off.

We have already noted that England had long before this by legislative enactment, made it manda-

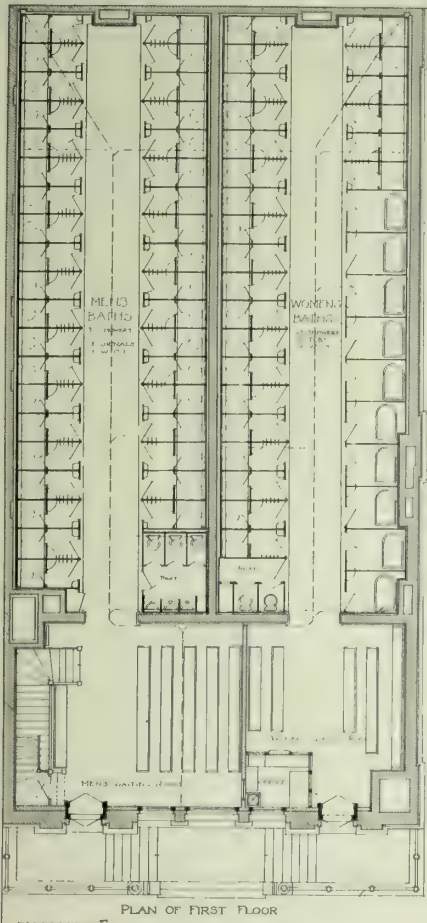
tory to establish these buildings as an integral part of the modern social system. In the early nineties, in response to an awakening on the part of our American body politic, a movement resulted that may be described as a new social spirit, or civic renaissance. The state of New York, after considerable discussion, finally consented to give the bath movement legislative support, and to provide ways and means to furnish proper bathing facilities for the people.

It is within the last decade that bath building has shown some systematic development. Each municipality heretofore approached and solved the problem after its own fashion, some following inapplicable foreign types, but generally, and with more unsatisfactory results, the

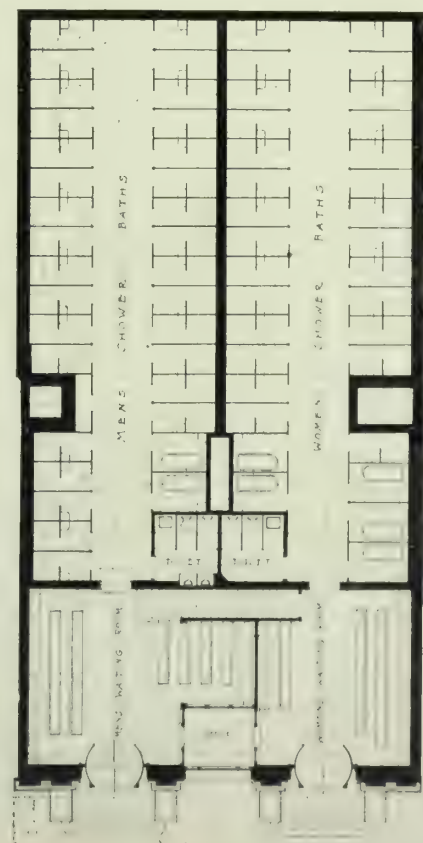
direction of an incompetent board of local improvement. No particular type has been agreed upon as being proper, even under similar local conditions. We find in the solving of this problem that lack of co-operation, which has been equally manifest in other matters of civic improvement in this country. This may be due, in a measure, to the complex character of our population, and to the size of



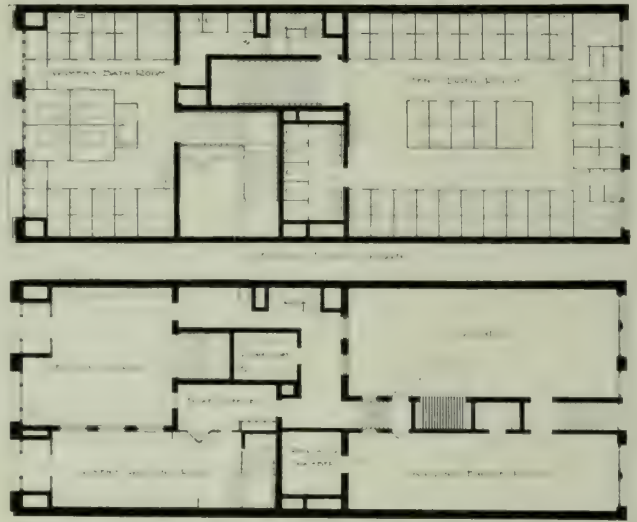
SWIMMING POOL, BROKAW HALL, PRINCETON UNIVERSITY.



PUBLIC BATH, JOHN JAY PARK, NEW YORK. Stoughton & Stoughton, Architects.



PUBLIC BATH, EAST ELEVENTH STREET, NEW YORK. Arnold W. Brunner, Architect.



PUBLIC BATH, DOVER STREET, BOSTON.
Peabody & Stearns, Architects.

a country as vast as ours which is in a state of rapid development, but above all to the lack of systematic records and comprehensive statistical information on the subject of baths. This last factor has been of great assistance to Germany in developing a system of baths properly proportioned to the needs of her people. Foreign cities of the first class are often equipped with small bath buildings but in this country the size of the buildings indicates fairly accurately the size of the city. We have had the advantage of the experimenting on the part of foreign authorities and have profited by their mistakes, and while our bath system, even up to the present day, is in a very experimental and indeterminate shape, some of our individual buildings are, as regards sanitation and fittings, equal to the European models and are often superior in simplicity of plan and merit of construction.

It is well to bear in mind, however, that we have not the difficulties of providing facilities for various classes of

bathers, and the elimination of steam, hot air and vapor baths has further simplified the problem. The elaborate entrance halls, staircases and rooms devoted to various purposes other than bathing, play a comparatively small part in the municipal bath establishments in this country, the desideratum being to provide the largest proportion possible of units devoted solely to bath purposes.

For convenience we may classify public baths into two main groups: the interior baths, including all that are enclosed, and which, as a rule, provide facilities for all year bathing, and a second group, including seashore and river baths and those open to the air.

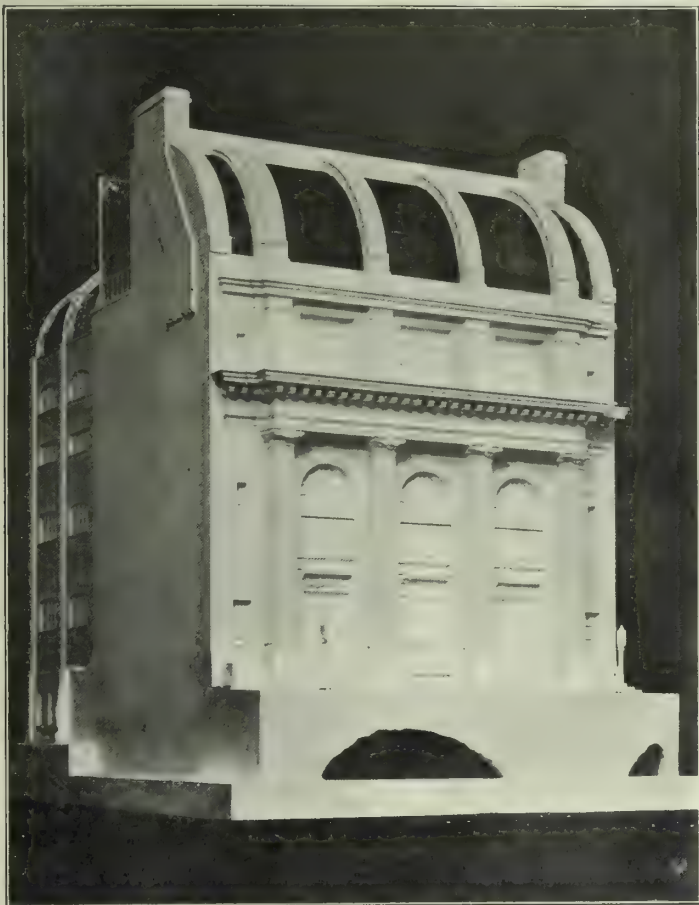
We find three distinct types of interior baths: first, those equipped with the shower; second, those equipped with the pool; and third, a type combining the other two.

The building equipped with the shower has up to the present time been the most favored by our municipalities. Its many advantages of economy, practicability and simplicity have appealed to the authorities, and the majority of the cities of this country having public baths have, at least, one building of this type.

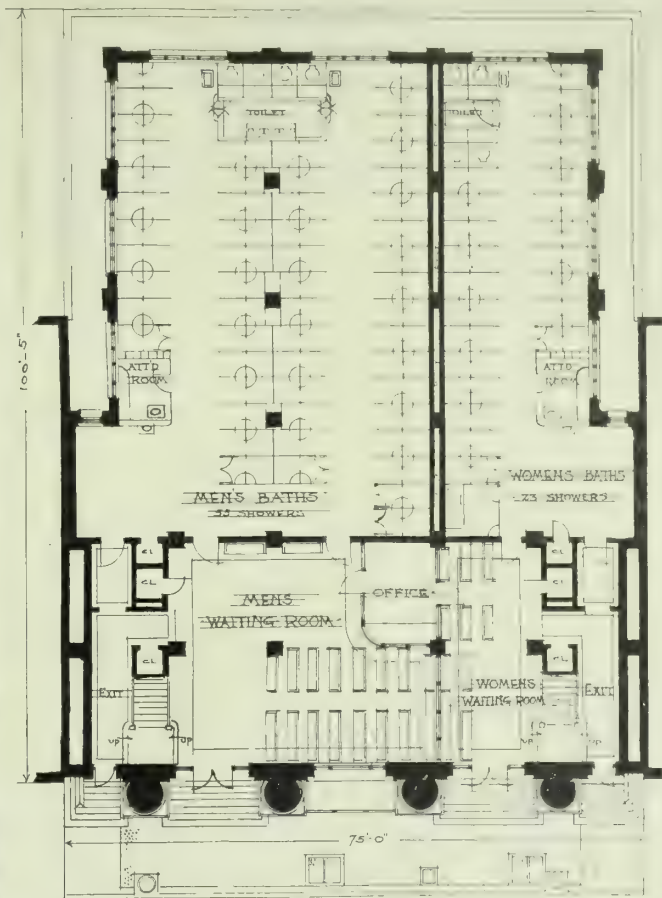
We have seen that the small city bath equipped with showers has been greatly favored by the German and other continental authorities. In cities of the first



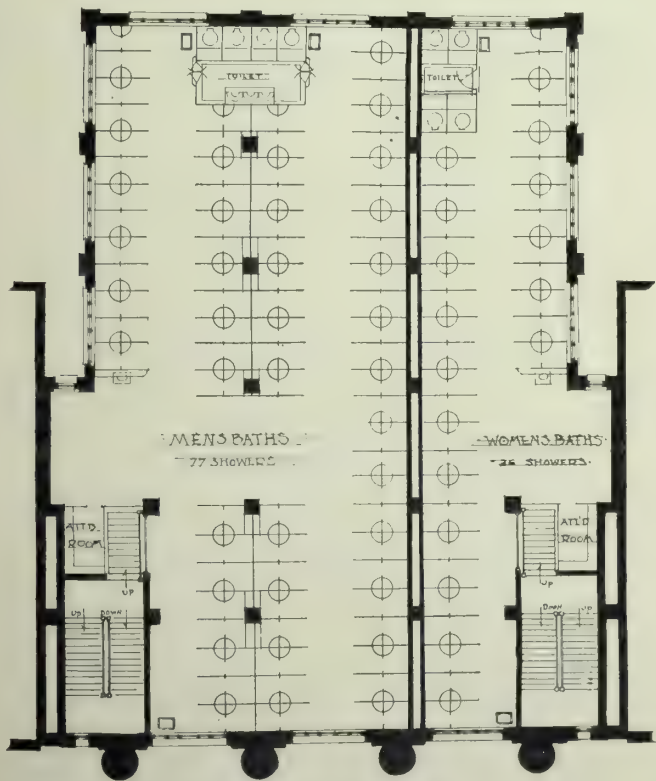
SWIMMING POOL, PUBLIC BATH, WEST TWENTY-THIRD STREET, NEW YORK.



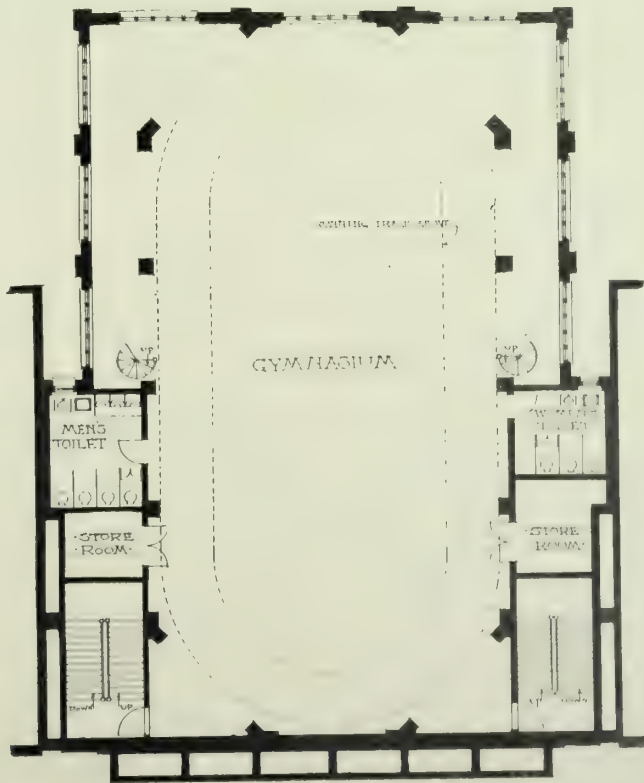
FROM PHOTOGRAPH OF MODEL.



FIRST FLOOR PLAN.



SECOND FLOOR PLAN.



GYMNASIUM FLOOR PLAN.

PUBLIC BATH AND GYMNASIUM, EAST FIFTY-FOURTH STREET, NEW YORK.
WERNER & WINDOLPH, ARCHITECTS.

class the capacity of these buildings rarely exceeds fifty units; the larger buildings invariably combine other forms of baths with the showers. In this country some of our largest institutions are equipped solely with shower baths, with a capacity varying from seventy-five to two hundred units.

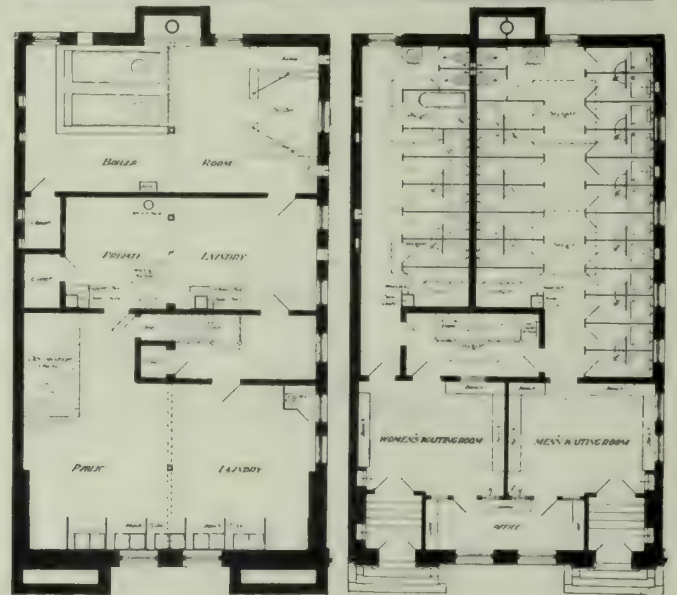
An excellent example of the modern shower type is the John Jay Park Public Bath of New York. The site is too near the river and the building being situated at the side and not in the heart of the district must be at a disadvantage in drawing its patronage; in fact, many of the New York baths are unfortunately situated in this respect. The building adjoins the park, however, and has the advantage of light and air on three sides. The comparatively small waiting rooms and large bathing hall space, with a total bathing capacity of one hundred and two shower compartments, are in marked contrast to foreign buildings of similar capacity, and show the strictly utilitarian purposes of the building. It has no



FIRST FLOOR.

PUBLIC BATH, CLEVELAND.
E. H. Beier, Architect.

BASEMENT.



BASEMENT.

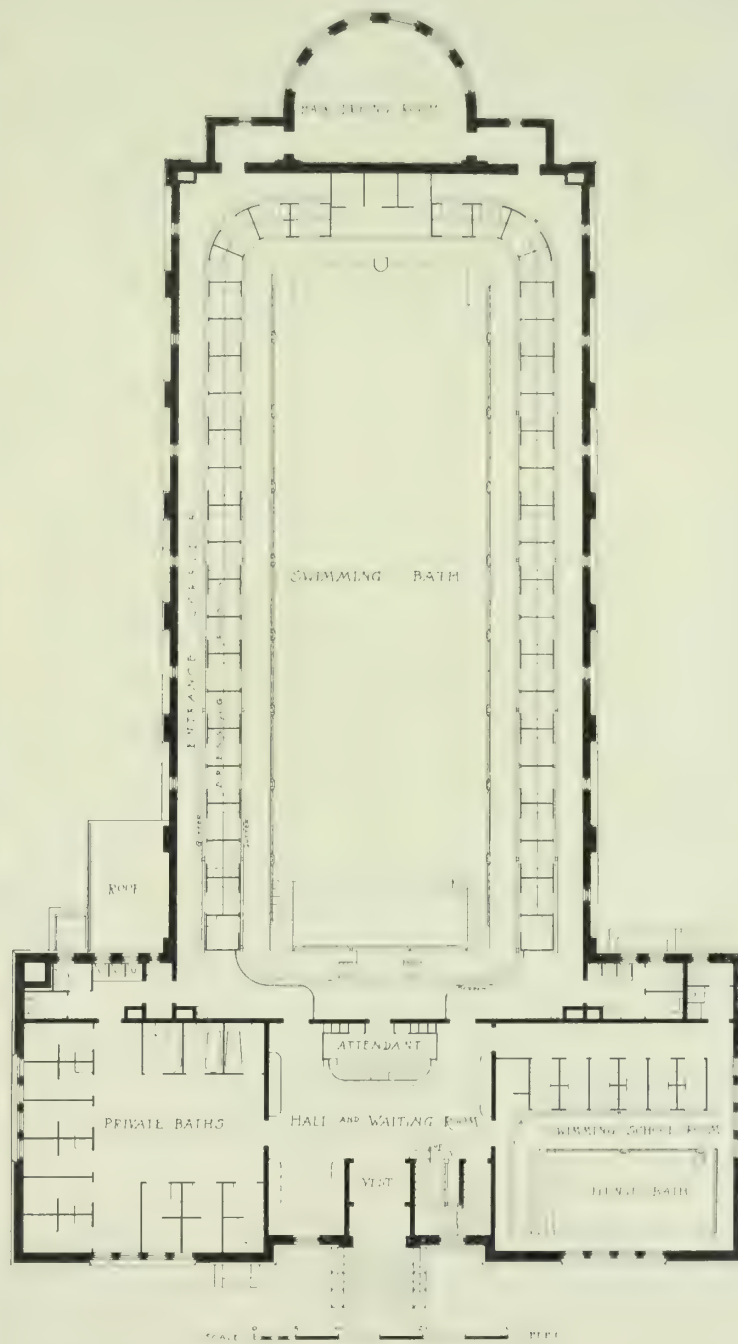
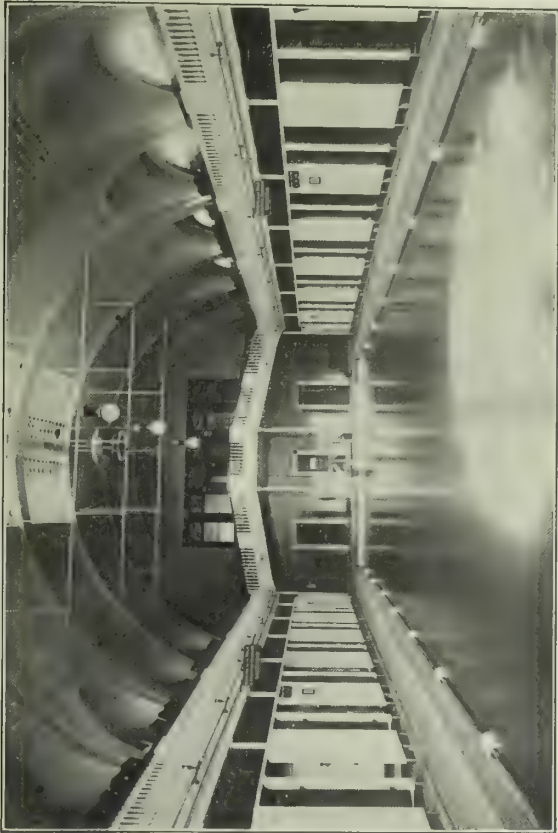
FIRST FLOOR.

WALTERS PUBLIC BATH, BALTIMORE.

provision for a laundry, in fact none of the baths of New York are so equipped, although the Rivington Street Bath, the first municipal bath in New York, had installed a laundry which did not prove successful, and the allotted space has since been replaced by shower compartments. Some others of our cities have had indifferent results with the public laundry; on the other hand, in Baltimore, Buffalo, Cleveland and Boston, those baths which are equipped with laundries have had fairly successful results. In analyzing this matter the success or failure of this public facility does not seem to be a question either of locality, character of the patronage, or administration, — the exact cause as yet remains undetermined.

We do know that abroad, particularly in England, the laundry plays an important and successful part in bath economy: it is invariably prominently placed, well ventilated, and its many advantages have appealed to the public. We find in this country the laundry relegated to the basement in a restricted space and often directly adjoining the boiler room.

The Dover Street Bath, Boston, is another example of the shower type. The shower halls are elevated some ten feet above the waiting-room level to provide necessary light and air for the laundry. Steam for this bath is



FIRST FLOOR PLAN

BROOKLINE PUBLIC BATH,

BROOKLINE, MASS.

F. JOSEPH UNTERSEE,

ARCHITECT.



PUBLIC BATH, PHILADELPHIA.

furnished from a fire department building in the neighborhood, an arrangement which has effected a considerable saving to the municipality.

The Buffalo Municipal Bath, situated in a tenement district of the city, illustrates a somewhat smaller city bath equipped with showers. A general waiting room for both sexes requires different times for bathing and considerably reduces the efficiency of

the building, as no more than half of the bathing hall capacity can be utilized at one time.

The Walters Public Bath at Baltimore shows the shower halls properly proportioned at a ratio of three to one, but the waiting rooms are somewhat inconsiderately planned, allowing an equal area for both sexes. The building is equipped with a small public and private laundry in the basement.

In a similar type of small city bath at Cleveland we find the waiting rooms of equal capacity and the shower halls very nearly so. A corner location has allowed a special entrance to the laundry in the basement.

At the other end of the scale in respect to size, and as an example of the shower-bath type of large capacity, is the East 54th Street Public Bath, New York, now under construction. Two stories of shower halls and some showers in the gymnasium give a total of two hundred and eleven bath units, furnishing a working capacity of eight thousand baths a day. In order to facilitate the circulation of such a large number of bathers, it was considered advisable to provide special exit halls. The ratio of the bathing hall capacity for the sexes is about two and one-half to one. In designing this building the architects considered it preferable to provide for one hundred and thirty shower bath units and to substitute a pool bath for the shower baths omitted. The authorities, however, did not consider the pool necessary at the time, but now have the matter under consideration. The relative value of the pool and shower to the public bath building will be discussed in another chapter.

The second type of the interior bath, in which the

pool alone serves the bathing purposes of the institution, is but rarely used in this country. The only instance where this system has been adopted throughout a large city is in Philadelphia, which has fifteen buildings so equipped. The baths are not of a strictly modern type and are comparatively inexpensive buildings, in most cases without proper heating plants.

The plan of the pool is modeled after the English type with the dressing compartments directly off the pool runway; adjoining the waiting room is a primitive form of a preliminary cleansing bath arranged in an alcove.

The pools are fed from the Schuylkill River, which is an economical arrangement, but at certain seasons of the year, when the river holds considerable deposits in suspension, the pools are not particularly inviting, as the baths have no filters. In spite of these objections the baths have served their purposes well, as is amply proved by a yearly attendance of five million bathers.

There are a few other isolated examples of the pool bath type which are similar in general plan and arrangement to the Philadelphia baths and call for no special comment.

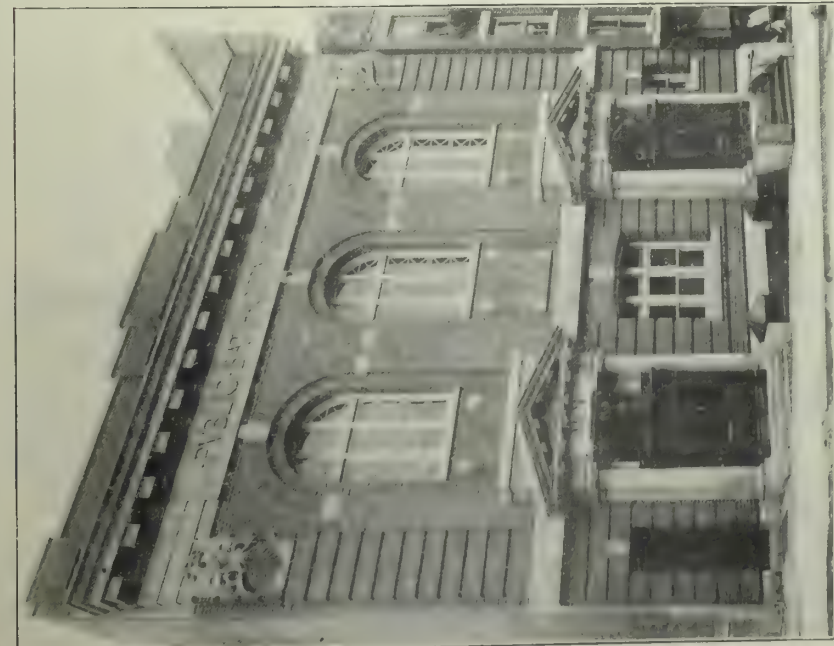
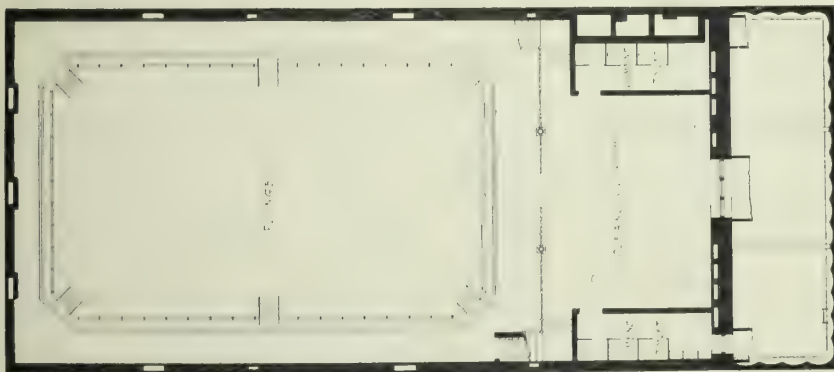
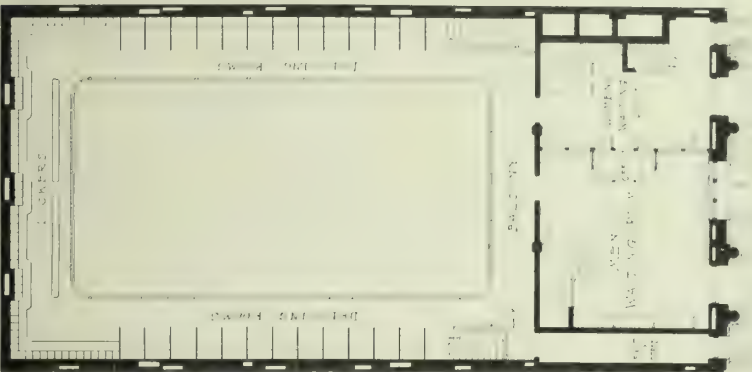
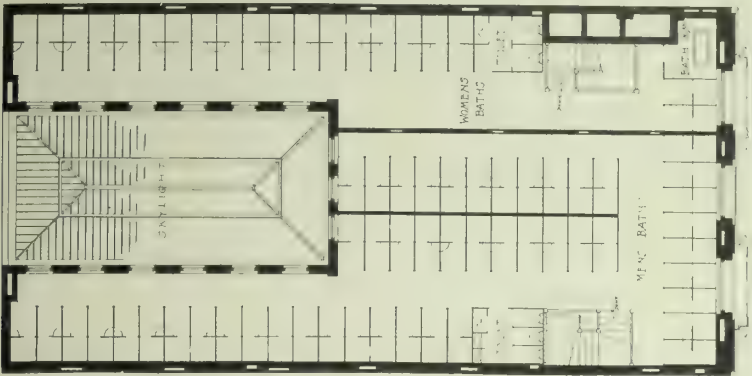
The third type, the combination of the pool and shower bath, is rapidly growing in favor in this country, and will, eventually, in the opinion of the writers, displace the other two forms, except in those instances where it is desirable to provide baths of very small capacity.

One of the earliest examples of this type in this country is the Municipal Bath at Brookline, Mass. This building closely follows foreign precedent and its similarity in general plan to the Quedlinburg Bath is very marked. The pool bath units as compared to the showers are proportionately much larger than in the German prototype, the pool bath providing more than eighty per cent of the capacity.

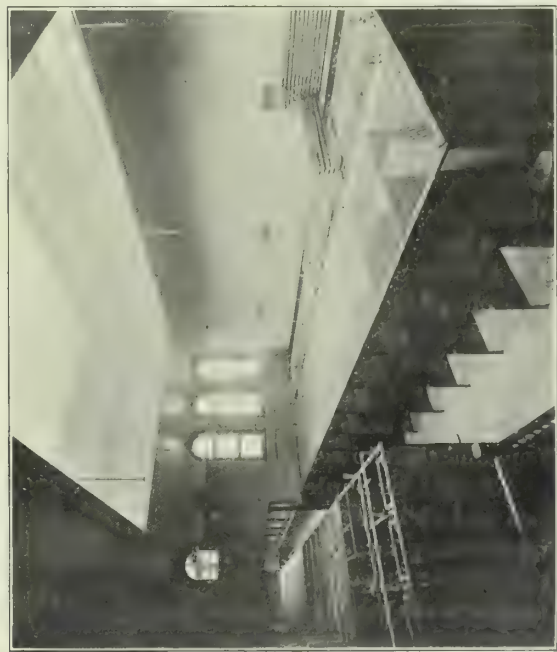


ORANGE STREET BATH, ALBANY, N. Y.





PUBLIC BATH,
WEST SIXTIETH STREET,
NEW YORK.
WERNER & WINDOLPH,
ARCHITECTS.



A general waiting-room gives access to the shower hall, the beginner's pool and the large pool. The plan of the plunge room also shows the use of the outside and inside gangways, the dressing compartments opening directly into both gangways. Such an arrangement allows the bathers to dispense with the form of the preliminary cleansing baths, and in the orderly town of Brookline this lack of control probably causes the superintendent no serious inconvenience, but, as a rule, this privilege would be abused and would certainly result in confusion.

The Orange Street Bath at Albany, with a pool room of similar capacity, shows that this particular difficulty has been overcome. The bather must pass through the preliminary cleansing showers before entering the pool. The plunge room, however, has the disadvantage that we noted in the Stuttgart Bath—an isolated position at the extreme end of the plot. Another serious objection is the entrance corridor providing access to both the plunge room and the shower halls.

Another example of the pool and shower type, with a considerably larger capacity, is the Cabot Street Bath, Boston (see plate 50), where bathing facilities are provided for on three floors. The general waiting room is directly off the street level, and a staircase leads to the plunge room below the level of the waiting room, another to the spectators' balcony above this level, a third to the shower hall in a mezzanine story and a fourth to the gymnasium above.

While admitting that this arrangement has the advantage of a single point of control from the main office, it certainly would not be successful during rush hours in the tenement sections of New York or other cities of the first class. The situation is further complicated by having one waiting room for both sexes, a difficulty which we have seen may be overcome by allotting special times for the sexes, but an arrangement that could scarcely be justified in a building with so large an equipment.

We have seen, in the Albany, Brookline and Philadel-

phia pool baths, the use of the dressing compartments directly off the pool gangway, following either the English or German principle. In this bath we have another arrangement,—the dressing compartments are provided for in a separate dressing hall, the preliminary cleansing being arranged for in shower compartments at the entrance to the plunge room.

This plan has a marked advantage in separating the dressing halls from the plunge room, particularly for the sanitation and washing down of the plunge room, but it requires additional supervision in controlling the bathers while in the dressing rooms. The ratio of the pool bath to shower units in this building is about the same as in the Albany and Brookline baths, namely, four to one.

The East 23d Street Bath, New York (see plate 51), recently completed, has the advantage of a large plot, which allows all the bathing facilities on one floor.

The excessive value of the land and cost of the building will require an enormous attendance to warrant such a large outlay from the standpoint of municipal economy. This bath is the only one in the country, so far as we know, where the shower units

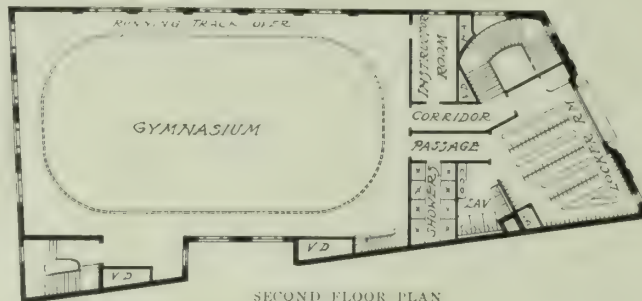
exceed the pool units. One hundred and fifty-five compartments have been provided for shower purposes, but it seems likely that a considerable number of them must be used for preliminary cleansing purposes and dressing

compartments for the pool. Access to the spectators' balcony in the plunge room is provided from a special entrance in the rear of the building.

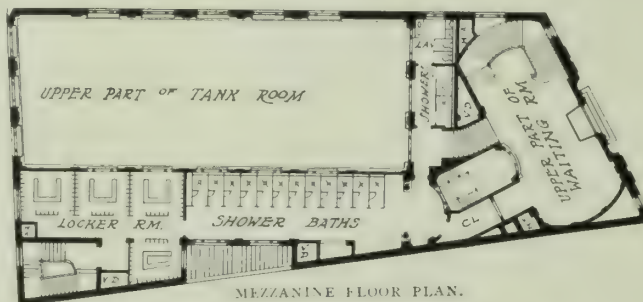
The West 60th Street Bath, New York, is still another variation of the third type. In this building, as in the Cabot Street Bath, shower and pool facilities are provided for on separate floors, but the arrangement of the pool differs considerably from the

Cabot Street plan and the other baths that have been mentioned.

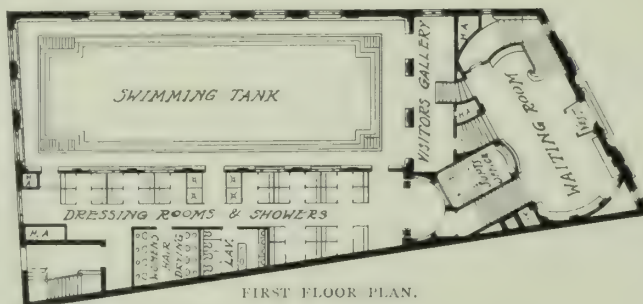
In this building the dressing rooms are placed on the balcony in the plunge room, directly off the waiting



SECOND FLOOR PLAN.



MEZZANINE FLOOR PLAN.



FIRST FLOOR PLAN.

PUBLIC BATH, CABOT STREET, BOSTON.
Herbert D. Hale, Architect.

PUBLIC BATHS, BUFFALO.



room level. This arrangement separates the dressing rooms and runway from the pool runway below, and the bathers are under direct control at all times.

Staircases lead from the balcony directly into the preliminary cleansing room below, which is separated from the plunge room by a necessary guard rail. This arrangement allows the undressing, preliminary cleansing and bathing to be supervised from any point of

control in the plunge room. Special staircases in the waiting rooms lead to the second-story shower halls, which have a capacity slightly less than that of the pool.

While these examples of the pool and shower bath may not in themselves express the last word in Interior Bath building, they at least show a progress which augurs well for the future.

Arrangement of Photographs and Magazine Plates.

BY SIDNEY F. KIMBALL.

THE many systems for arranging photographs and magazine plates, which have been described in THE BRICKBUILDER, all possess distinctive features of excellence, some of which, however, may seem mutually exclusive. There remains still another system which aims to combine many of these features, and may thus present some advantages over any yet suggested.

In order that it may be better understood, perhaps it will be well, before outlining it, to review briefly the general principles which govern arrangements of this sort. The kind of system adopted, as Mr. Parker pointed out in THE BRICKBUILDER for October, 1906, will depend upon the way in which one refers to one's plates. One may look either for a *special example*, such as the Riccardi Palace or the dome of St. Paul's; for any example of a *special type*, such as a post office or a theater; or for any example of some particular *detail*, such as a doorway, a balustrade, or a bronze lamp. The first two of these methods of reference are of primary importance; therefore the plates themselves will be arranged to facilitate one, or if possible, both of them. The third method is secondary. Its requirements may be satisfied either by a card catalog, in which the various interesting features of each plate are indexed, every one on a separate card, or possibly by Mr. Parker's plan for coloring the edges of the plates themselves.

Of the two primary methods, the first is generally employed in referring to buildings of the past, because in their case one usually knows just which example one wishes. Photographs of these buildings, and the few magazine plates of them which appear, may be arranged either geographically or in some other simple way. Those belonging to the Department of Architecture at Harvard University, for instance, are first divided into groups according to their architectural style — Greek, Roman, Byzantine, and so forth; then those of each style are grouped by countries; and finally those of each country are divided into towns, arranged alphabetically. The various buildings of a single town, however, are there not placed in any logical sequence, but haphazard in the order of their accession, so that with cities like Rome, Florence, or Paris, many plates must still be turned over before the desired building is found. It would seem that by placing the buildings of each town in alphabetical order an improvement in this respect might be made.

The second method of reference, for the purpose of finding any example of a special type of building, is the one most used with drawings and photographs of modern work, which serve as precedents for similar problems at the designing-table. The main bulk of these is made up of the magazine plates, tremendous in number, which are most often and perhaps most conveniently kept loose and unmounted in vertical files. The few photographs which deal with the same kind of subjects may be mounted on cards and placed with them. The obvious way to divide material of this character is into classes by type. If, however, these classes are arranged in the file alphabetically, there is the disadvantage that related heads will come far apart. Furthermore, it will be impossible to carry out this system consistently: subheads will have to be made and a mixed system will result. Thus, for example, under Residences there must be subdivisions into City, Suburban, and Country, at least. To place these subclasses, grading into one another as they do, in their separate places in the main alphabet, is hardly conceivable. They must be grouped in some way under the head of Residences. The same advantage could be gained by having other related heads side by side, as Academies, Colleges, and Technical Schools, all presenting architecturally much the same features, and each useful as a reference for the others. The logical outcome of this condition is a complete arrangement by heads and subheads, placed in some systematic order.

Such an arrangement already exists in the Dewey classification, advocated by Mr. Ginsburger in THE BRICKBUILDER for October, 1907 (q. v.), which presents many features highly worthy of adoption. Its decimal system of numbering the classes, which allows any one of them to be divided into ten smaller sections by adding another decimal place to the class-number, is especially valuable, as it makes possible unlimited expansion and interpolation. This classification, however, is one embracing all human knowledge, and unfortunately represents, in so far as it applies to magazine plates, the theoretical standpoint of a librarian rather than the practical one of an architect. Owing to limitations imposed by its general scheme, which left but four main heads available for classifying buildings, the author was forced at this point into a complete lack of coördination between the parts. There is surely less reason for grouping Commercial

Buildings and Manufactories under Public Buildings than there would be for placing Religious and especially Educational Buildings there; the first two, like most of the subheads under Public Buildings, are really coördinate with the last two, which are made main heads. The only advantage to be gained by thus cramping the headings is that in this form they take their place in a universal scheme of knowledge, and stand in their proper relation to African Ethnology and Didactic Poetry, for instance—an advantage which the architect will readily sacrifice for any practical gain in usefulness. The most logical thing for him to do is frankly to make as many main divisions as he needs.

The following, shown by experience to be useful, have been adopted as the basis of the new classification here to be described, which, while preserving the numbering system and much of the matter of the Dewey classification, attempts to overcome its deficiencies.

1. Administrative and Governmental Buildings.
2. Monuments.
3. Ecclesiastical and Religious Buildings.
4. Educational and Scientific Buildings.
5. Society Buildings
6. Residential.
7. Recreation and Amusement.
8. Business and Commercial.
9. Transportation and Storage.
10. Manufactories.
11. Bridges.
12. Other Buildings.

The arrangement of these heads, while in some degree arbitrary, has been made so far as possible with a view to easy transition from each to the next through the subdivisions, as may be seen later. Thus, Parish Houses and Sunday-School Buildings, the last section under 3, comes next in the file to Day Schools, the first under 4.

In the same way the residential clubs of 5 are followed by the apartment hotels of 6, related subjects being thus brought near together.

In splitting up the main classes the endeavor has been to keep closely to the types of actual modern work, and to subdivide only when differences in architectural character occur. In both these respects the Dewey classification is defective. To use an illustration furnished by Mr. Ginsburger himself, in the class of Ecclesiastical and Religious Buildings, the sections Temples, Mosques, and Monasteries are practically useless for modern work, while the section Y. M. C. A. would obviously, from an architect's standpoint, be much better placed with the clubs. The second fault, that of subdivisions architecturally needless, though existing to some extent in the original Dewey classification, is exemplified still more by the expansion of it published by the Experiment Station of the University of Illinois, and described in the October issue of *THE BRICKBUILDER*. Here, for instance, Almshouses are subdivided into National, State, County, City, Town, Endowed, Subscription, etc., though architecturally forming a single unit.

In the classification now proposed an effort has been made to minimize these defects, although doubtless many still remain. Some of these are inherent in the scheme

of a decimal classification; for instance, the lack of exact coördination between certain of the heads. 1.55 Registries of Deeds is not properly a sub-division of 1.5 Court Houses; but because there are no more main heads left here, it is placed under 1.5, the one to which it is most closely related. In spite of such imperfections, the classification has stood with absolute satisfaction the test of experience with several small collections, and is now being applied, so far without meeting any difficulties, to a collection of about ten thousand plates covering the greatest variety of subjects. In full it is as follows:

1. ADMINISTRATIVE. GOVERNMENTAL. ETC.
 - 1.1 Capitols. Houses of Parliament. Legislative Buildings.
 - 1.2 Ministries of War, State, etc. Governmental Departments and Office Buildings.
 - 1.3 City and Town Halls.
 - 1.4 Custom Houses. Excise Offices.
 - 1.5 Court Houses.
 - 1.55 Registries of Deeds. Archive Buildings.
 - 1.6 Post Offices.
 - 1.63 Post Office and Custom House combined.
 - 1.66 Post Office and Court House combined.
 - 1.69 Post Office, Custom House, and Court House combined.
 - 1.7 Engine Houses. Fire Alarm Stations.
 - 1.8 Military, Protective, and Corrective.
 - 1.81 Barracks, Military Post Buildings.
 - 1.82 Armories. (See also 7.3, Riding Halls)
 - 1.83 Arsenal.
 - 1.85 Police Stations.
 - 1.86 Penitentiaries. Jails.
 - 1.87 Reformatories for Adults.
 - 1.88 Reform Schools.
 - 1.9 Hospitals. Asylums.
 - 1.91 Sick and Wounded. Incurables. Etc.
 - 1.92 Sanatoria.
 - 1.93 Insane. Feeble Minded. Inebriates.
 - 1.94 Blind. Deaf and Dumb. (See also 4.17, Day Schools for Defectives.)
 - 1.95 Almshouses.
 - 1.96 Aged. Convents, etc.
 - 1.97 Soldiers' Homes.
 - 1.98 Orphans. Children. Foundlings.
2. MONUMENTS.
 - 2.1 Commemorative.
 - 2.2 Funerary.
 - 2.21 Monuments proper.
 - 2.22 Tombs. Mausoleums.
 - 2.23 Receiving Vaults.
 - 2.3 etc. (Numbers left blank or omitted may be filled as occasion arises.)
3. ECCLESIASTICAL AND RELIGIOUS.
 - 3.1 Chapels, small.
 - 3.2 Parish Churches.
 - 3.3 Cathedrals.
 - 3.4 Synagogues.
 - 3.5 Parish Houses. Sunday-School Buildings.
4. EDUCATIONAL AND SCIENTIFIC.
 - 4.1 Day Schools.
 - 4.11 Kindergartens.
 - 4.12 Primary Schools.

- 4.13 Grammar Schools.
- 4.14 High Schools.
- 4.15 Normal Schools.
- 4.16 Manual Training Schools.
- 4.17 Schools for Defectives. (See also 1.94, Asylums for the Blind, Deaf and Dumb.)
- 4.2 Boarding Schools.
- 4.3 Colleges. Universities.
- 4.4 Professional and Technical Schools not connected with a University.
- 4.41 Theology.
- 4.42 Law.
- 4.43 Medicine.
- 4.44 Science, Engineering.
- 4.45 Art.
- 4.46 Music.
- 4.5 Independent Scientific Institutions. Laboratories. Observatories.
- 4.6 Scientific Museums. Menageries.
- 4.7 Art Museums. Galleries.
- 4.8 Libraries.
- 4.9 Learned Societies. (See also 5.11 City Clubs non-residential.)
- 5. SOCIETY BUILDINGS.
- 5.1 City Clubs.
- 5.11 Non-residential. (See also 4.9 Learned Societies.)
- 5.115 Y. M. C. A.
- 5.12 Residential.
- 5.125 Y. M. C. A.
- 5.2 Suburban Clubs.
- 5.25 Y. M. C. A.
- 5.3 Country Clubs.
- 6. RESIDENTIAL.
- 6.1 Hotels. Etc.
- 6.11 City Hotels.
- 6.12 Country Hotels.
- 6.15 Restaurants. Cafés Saloons. Bars. Rathskellers.
- 6.2 Apartments. Tenements. (See also 8.3 Mixed Store, Office, and Apartment Buildings.)
- 6.3 Palaces and Palatial Private Houses. Embassies. Etc. (Detached.)
- 6.4 City Houses in Block. (Anything with *one* party wall or more.)
- 6.5 City Houses not in Block.
- 6.6 Suburban Houses. Village Houses.
- 6.7 Country Houses.
- 6.75 Farm Houses.
- 6.8 Cottages. Bungalows.
- 6.9 Outbuildings. Dependencies.
- 6.91 City.
- 6.911 City Stables, private.
- 6.912 Garages.
- 6.92 Country. Farm Buildings.
- 6.921 Gate and Porter's Lodges.
- 6.922 Kitchens. Laundries. Dairies. Etc.
- 6.923 Stables. Kennels. Etc.
- 6.924 Carriage Houses. Garages.
- 6.925 Barns. Granaries. Ice Houses. Silos. Etc.
- 6.926 Conservatories. Greenhouses.
- 6.927 Windmills. Water Towers.
- 7. RECREATION AND AMUSEMENT.
- 7.1 Theaters. Opera Houses.
- 7.2 Concert Halls. Lecture Halls.
- 7.3 Rinks. Amphitheaters. Riding Halls and Schools. (See also 1.82, Armories.)
- 7.4 Gymnasia. Turn Halls. Baseball Cages. (See also 5.115, 5.125, and 5.25, Y. M. C. A.)
- 7.5 Baths, swimming and otherwise. Locker Buildings.
- 7.6 Buildings for watering places. Beach Bath Houses.
- 7.7 Buildings for parks.
- 7.8 Boat Houses.
- 7.9 Stadiums. Others.
- 8. BUSINESS AND COMMERCIAL.
- 8.1 Markets.
- 8.2 Stores, Wholesale and Retail.
- 8.3 Mixed Store, Office, and Apartment Buildings.
- 8.31 Stores and Offices.
- 8.32 Stores and Flats.
- 8.33 Offices and Flats.
- 8.34 Including Hall.
- 8.4 Office Buildings.
- 8.41 Low.
- 8.42 High, Steel Construction.
- 8.5 Banks. Trust Companies. Safe Deposit Vaults.
- 8.55 Bank and Office.
- 8.6 Exchanges. Boards of Trade. Clearing-houses.
- 9. TRANSPORTATION AND STORAGE.
- 9.1 Railway Passenger Stations.
- 9.11 Way Stations.
- 9.111 City.
- 9.112 Country.
- 9.12 Terminal Stations.
- 9.2 Street Railway Stations.
- 9.21 Surface Stations.
- 9.22 Elevated Stations.
- 9.23 Subway Stations.
- 9.3 Wharf and Dock Buildings.
- 9.31 Ferry Houses. Buildings for passengers. Immigrant Stations.
- 9.32 Dock Buildings for freight, etc.
- 9.4 Railway Freight Houses.
- 9.5 Warehouses — Bonded, Storage, etc. Cold Storage.
- 9.6 Grain Elevators. Coal and Ore Docks.
- 9.7 Railway Roundhouses. Car Barns. Etc.
- 9.71 Roundhouses.
- 9.72 Car Barns.
- 9.8 Signal Towers. Etc.
- 9.9 Others.
- 10. FACTORIES. ETC.
- 10.1 Mill-Construction Buildings, for whatever use.
- 10.2 Power Stations.
- 10.3 Abattoirs.
- 10.4 Laundries.
- 11. BRIDGES.
- 11.1 Wood.
- 11.2 Masonry (stone, brick, concrete, etc.).

- 11.3 Steel and Iron.
- 11.31 Simple Truss.
- 11.32 Cantilever.
- 11.33 Arch.
- 11.34 Suspension.

12. OTHER BUILDINGS.

(To be subdivided to suit each individual collection.)

The plates are sorted into these classes, the proper numbers being marked on the corner of each; and the groups of plates are arranged in the file in numerical order, between guide-cards bearing both the number and name of the class. When there are few plates in any class its guide-card may be omitted without disadvantage; when there are none, the whole division simply drops out of the file, yet as soon as any are acquired, it is ready to spring into existence. If the guide-cards used have their tabs at different points along their top edges, those with tabs at the left may be used to separate the main groups, those next to them to separate the first decimal subdivisions, and so on. With guides so arranged any class may be found readily, even if its number is not known. If still more definite reference should be desired, an alphabetical index of all the classes might be made, so that their numbers could be found directly without searching in the table. This will ordinarily not be necessary, because even occasional use of the classification will make its main outlines familiar.

Dividing the plates simply into classes, however, will not be enough. Even if the chief purpose of the arrangement is to bring together the different types, there will often be occasions when a definite, individual example will be wanted. Many of the classes will be so large that it can be found only after long search. Moreover, if the plates are to be card-indexed for details, not only must each one be immediately accessible, but also it must have, besides its class-number, an individual number, peculiar to itself alone. For both these reasons some further arrangement, within the classes, is necessary. Mr. Parker suggests in the November, 1906, issue, that the classes by type should be subdivided by locality, construction, etc., but does not give any method for this.

The method adopted with this classification is, first, the arrangement of the buildings in each class alphabetically by the names of the cities or towns in which they stand, and then the buildings in each town alphabetically by the names of their architects. To the class number of each plate are added the first two or three letters of the name of the town, and after a dash, those of the architect's name. Thus 1.83 Har—Smi would stand for an arsenal in Hartford by Smith, and 6.7 Arl—Jon would stand for a country house in Arlington by Jones. If Jones had done two country houses there, they would be marked 6.7 Arl—Jon—A, and 6.7 Arl—Jon—B, in order to give each some distinguishing sign for purposes of reference. For the same reason the plates representing each example are divided into three groups: (1) plans, (2) elevations and sections, (3) photographs and perspectives, designated by *p*, *e*, and *f*, respectively; and the plates of each group are numbered 1, 2, 3, and so on, in

the order of their accession. The second photograph would be *f* 2, the third plan *p* 3, and so forth. If there should be a plan with either an elevation or a photograph on the same plate, it is put among the plans; if there is an elevation with a photograph also, it is put among the elevations. The last two marks are placed below a line drawn under the rest. Thus the completed number of the third photograph of the second country house in Arlington by Jones would be $\frac{6.7 \text{ Arl—Jon—B}}{f \ 3}$. The

whole system, which at first glance must appear somewhat cumbersome, is really very easy of application; so that, after a small amount of practice, the numbers can be put on as rapidly as the plates can be classified. For instance, taking some plates at random from the December BRICKBUILDER, it is evident that those of Mr. Atterbury's house at Ridgefield, Pls. 182, 183, 184, and 185, will be marked 6.7 Rid—Att, over *f* 1, *f* 2, *f* 3, and *p* 1, respectively; whereas that of Peabody & Stearns's High School at Whitinsville, Pl. 186, will be marked $\frac{4.14 \text{ Whi—Pea}}{p \ 1}$. A practical illustration of the utility of

the system was recently given when an architect, being away in the country and desiring certain plates, was able to write home their numbers, making them up on the spot, and have the office boy pick them out. With any arbitrary numbering system, such as that proposed by Mr. Kelsey, such a thing would have been impossible.

In one or two cases it has been thought desirable, for various reasons, to make slightly different arrangements within the classes. The sections for hospitals and asylums, colleges, and similar institutions are first divided, as usual, by the name of the city or town where they are, but institutions in the same place are then lettered serially A, B, C, etc., and their separate buildings numbered 1, 2, 3, etc. In this way, confusion caused by multiplicity of names is avoided, and the division of institutional buildings in the same city is made on the institutional lines, not on the lines of architectural authorship. The advantage of this is evident in a city like New York, where Columbia University and New York University (which, one largely, the other entirely, built by Mr. McKim, would otherwise be confused) are readily given the numbers 4.3 N—A and 4.3 N—B. Again, in the case of ecclesiastical and religious buildings, a general division into Gothic and not-Gothic is first made, even before the subheads are put in. The parts are designated by *g* and *c*, and then divided as usual. A Gothic parish church would be 3. *g* 2; a Gothic cathedral, 3. *g* 3; a cathedral in the Renaissance style, 3. *c* 3. Other minor rules and variations might be described, but they will readily suggest themselves to the reader as he meets their problems individually.

With the plates numbered and arranged according to the proposed system, all of the three methods of reference are equally possible. Not only are all the examples of each type brought together, but also any special example is instantly available, and the whole collection may be card-indexed, so that reference is instant and sure.

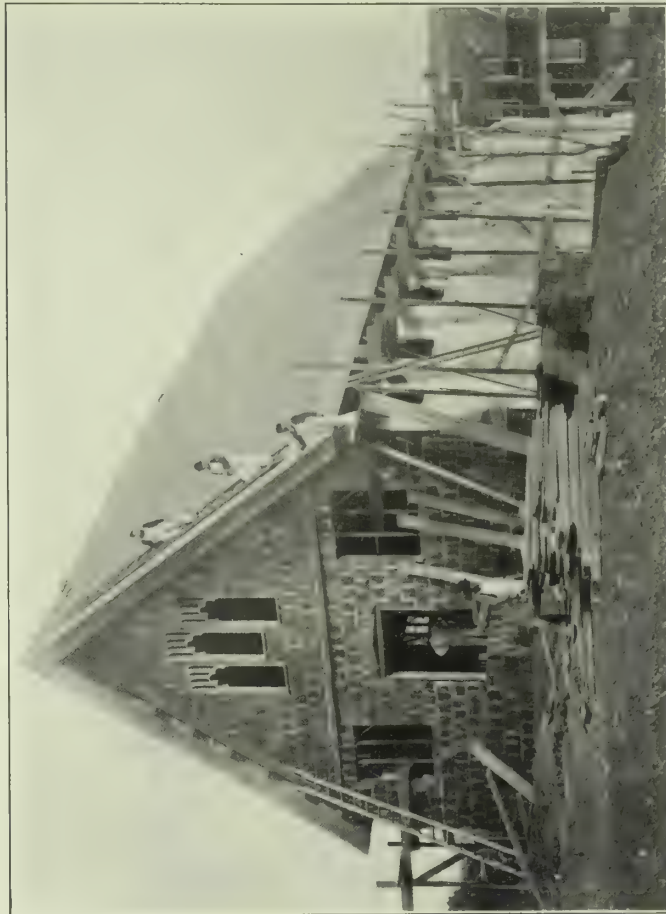


IN COURSE OF CONSTRUCTION.

CARPENTER & CROCKER, ARCHITECTS.

HOUSE AT OAKMONT, PA.

WITH PLASTER FINISH.



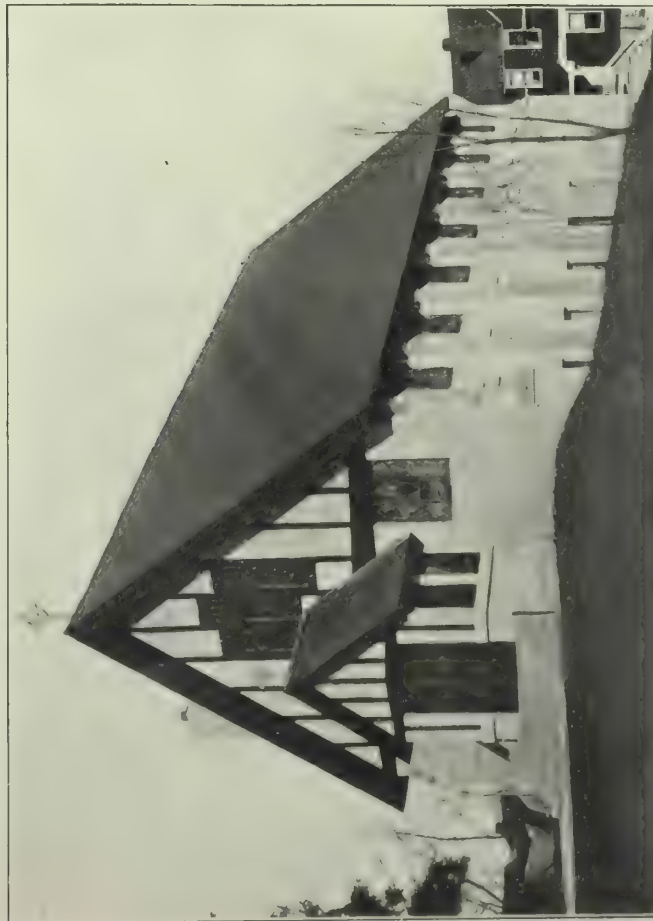
IN COURSE OF CONSTRUCTION.

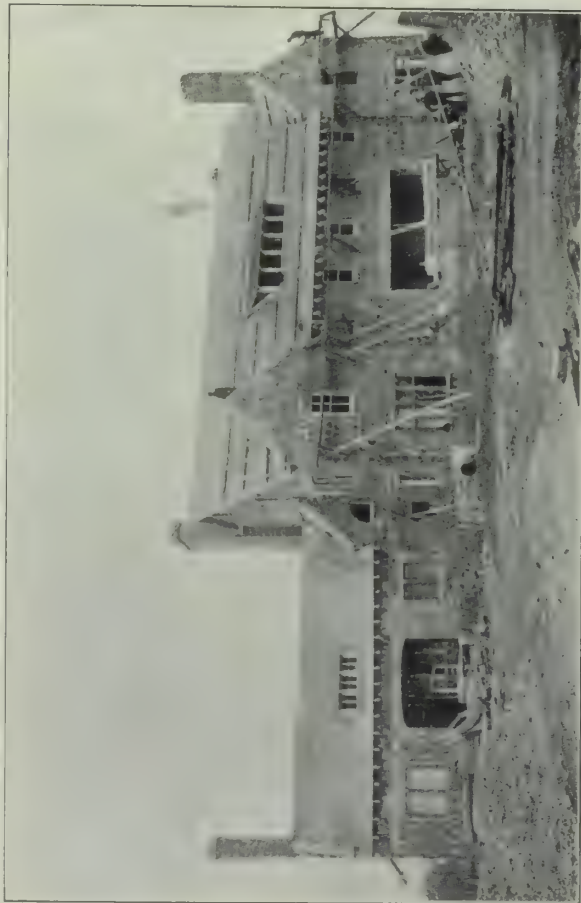
H. B. UPJOHN, ARCHITECT.

CHURCH AT WEST ORANGE, N. J.

WITH PLASTER FINISH.

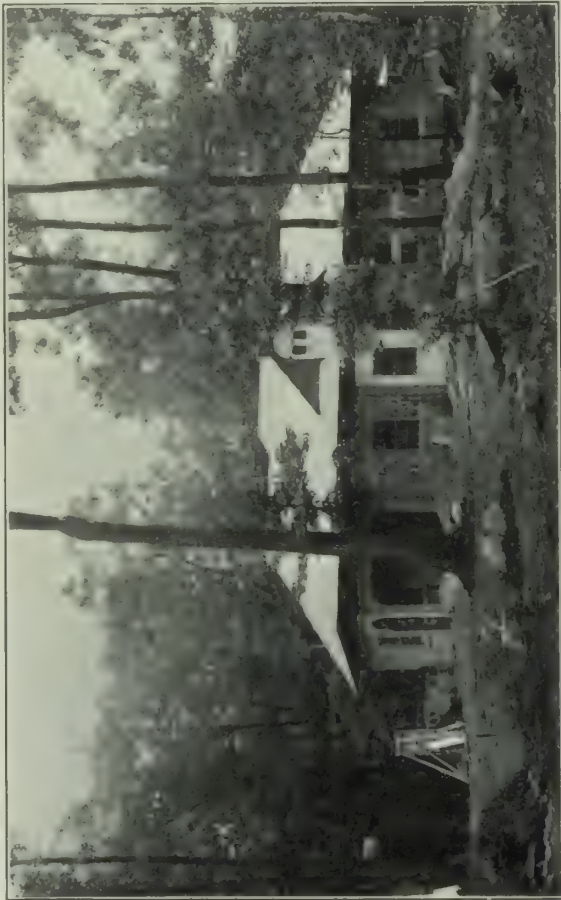
EXAMPLES OF TERRA COTTA HOLLOW TILE CONSTRUCTION.





IN COURSE OF CONSTRUCTION.

HOUSE AT MT. KISCO, N. Y. Delano & Aldrich, Architects



IN COURSE OF CONSTRUCTION.

LODGE AT ENGLEWOOD, N. J. Dunham Wheeler, Architect.



HOUSE AT ENGLEWOOD, N. J. Dunham Wheeler, Architect.



HOUSE AT UPPER MONTCLAIR, N. J. D. S. Van Antwerp, Architect.

EXAMPLES OF TERRA COTTA HOLLOW TILE CONSTRUCTION.

Editorial Comment and Selected Miscellany

THE fire at Chelsea, Mass., which began at about 10.30 A. M., Sunday, April 12, and continued until midnight, destroying some ten million dollars' worth of property, furnishes little by way of suggestion in matters pertaining to building construction which is not already pretty thoroughly known.

This city, of some twenty-five thousand inhabitants, adjoins Boston on the north and has been ruled for a long period by a succession of the ordinary type of politicians who have been wholly lacking in administrative capacity, with the result that intelligent and progressive municipal thought and action have become unknown quantities. The city was built up almost entirely of wood, with now and then a business block, schoolhouse and church of brick or stone, but these offered little resistance to the flames, which were driven before a forty-mile gale. Not a single building in the whole city was of fireproof construction, although 'tis worthy of note that the façade of the Odd Fellows Building, which was entirely of architectural terra cotta, stands alone amid the ruins without having been appreciably damaged. Burning shingles were driven by the wind to the shingle or gravel and tar roofs of other buildings a mile or more distant, with the

result that every building within the fire-swept area, which is about two and one-half miles long by one mile wide, is in ruins. But who thinks that Chelsea will be rebuilt without shingle and tar paper roofs, or with proper regard for safe construction? The insurance money which will come to the mortgage holders on many of these homes will be received with gratitude, and the owner with his small equity will be glad to find shelter under any sort of roof. Will the officials of the city of Chelsea demand of property owners a better type of construction? Will the city, in the rebuilding of its own, set an example worthy of emulation? Will the insurance companies who will stand two-thirds of the burden of this loss-by-fire-calamity take a hand in remedying existing evils? Let us see.

What happened to Chelsea could, probably would, under similar conditions, happen to almost any other small city or town in the United States.



DETAIL BY F. C. BROWNE,
ARCHITECT.
NEW YORK ARCHITECTURAL
TERRA COTTA CO., MAKERS.



FOUNTAIN IN PALM ROOM, STATLER HOTEL, BUFFALO, N. Y.
Executed in Faience by Atlantic Terra Cotta Company.
Esenwein & Johnson, Architects.

THE disastrous fires with loss of life at Pottstown, Pa., and Collinwood, Ohio, prove the necessity of greater vigilance with regard to buildings in which many persons gather in suburbs and small towns. Not only the construction but maintenance should be watched. If this is difficult of realization within the organizations of cities, how can it be attained over a large area sparsely dotted with small places? State inspection has been shown to be lax. The spectacle of an officer settling himself into a snug berth of inspectorship does not suggest the vigilance necessary to cope with potential danger; and we are reminded of Governor Hughes's recently expressed dictum that the need to-day is not in new laws but of character in the men called upon to administer the law. Long before political machinery can be attuned to its duty, we suspect that private enterprise as embodied in the insurance business will have organized its own method of inspection. The cost of this must be added to the premiums, but the result will be a safeguarding of life, also of the interests of stockholders in the insurance companies.

THE USE OF TERRA COTTA HOLLOW TILE BLOCKS IN THE CONSTRUCTION OF HOUSES.

ON pages 83 and 84 of this issue there is presented a series of illustrations of

houses which have been built of terra cotta hollow tile blocks. These examples of this type of construction are given with the sole object of indicating the development of a new type of building construction which is being adopted pretty generally by architects throughout the country. At this stage in the development of the science of building it is important that a type of construction which is economical in all respects, and which lends itself easily to the demands of a free architectural treatment, and which is dependable in the matters of strength, weather and fireproof qualities, should receive the close scrutiny of those who are looked to to solve the problem of rational building.

The illustrations are given merely to show the character of the work in which this construction is now being employed but there is no limit to the types of buildings in which it may be used successfully, as the material lends itself easily to all forms in design and construction. It is unnecessary to here enter into the discussion of comparative costs, details of construction for walls and floors, strength of the hollow tile blocks, sizes, shapes, etc., for this is all given in detail in a very interesting treatise upon the subject which has recently been issued in booklet form by the National Fire-Proofing Company.



DETAIL BY WILLIAM E. MOWBRAY,
ARCHITECT.
New Jersey Terra Cotta Co., Makers.



A STORE FRONT, CINCINNATI.
Frank M. Andrews, Architect.
Treated in colored faience, including a rich combination of red tones.
Work executed by Rookwood Pottery Company.

A copy of this booklet may be had upon application to any of the offices of the company. It is a work which presents in a most direct way all the data concerning this particular type of construction and we are glad to commend it to those of our readers who are interested.

Them," recently issued by the National Fire-Proofing Company, there were illustrated two buildings with details of structural work, at Briarcliff, N. Y., by Robert W. Gardner, architect. Through an oversight Mr. Gardner's name was omitted in connection with the illustrations. The National Fire-Proofing Company wishes in this manner to make amends as far as possible for their oversight.

IN GENERAL.

New York will build permanent state fair buildings at Syracuse at a cost approximating a million and a half dollars.

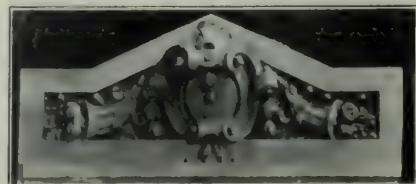
HERCULEAN ARCH AND PHOENIX WALL BLOCKS.

THE above is the title of another interesting treatise on the use of terra-cotta hollow tile blocks in floor and wall construction which has recently been issued by Henry Maurer & Son. The work is amply illustrated from drawings, showing wall, floor and partition construction and photographs of many buildings in which these systems have been employed.

It is desirable that the walls of a house should be fireproof but it is imperative that they shall be damp proof, and the fact that hollow tile blocks are being used so extensively to-day in the walls of houses and other buildings is evidence that they are fully meeting these demands. Hollow tile block construction is no fad, and its increased use warrants a close study of the systems which are being put forth by concerns which have held the respect of the building fraternity for more than a generation.

ACKNOWLEDGMENT.

IN the book entitled "Fireproof Houses of Terra Cotta Hollow Tile and How to build



DETAIL BY CHAPPELLE & BOSWORTH,
ARCHITECTS.
South Amboy Terra Cotta Co., Makers.



ENTRANCE TO METROPOLITAN BUILDING, ST. LOUIS.
Mauran, Russell & Garden, Architects.
Treated in green, yellow and brown dull finish faience.
Made by Hartford Faience Company.

Richard Hooker and Howard K. Jones have been admitted to the firm of Alden & Harlow, architects, Pittsburgh.

The date of the next Convention of the Architectural League of America has been set for September 17, 18 and 19 at Detroit, to be held under the auspices of the Detroit Architectural Club.



SCHOOLHOUSE, SOUTH BEND, IND.
George W. Selby, Architect.
Built of Hydraulic-Press Brick.

Architect Grosvenor Atterbury has been commissioned to design a building in Philadelphia for the Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis.

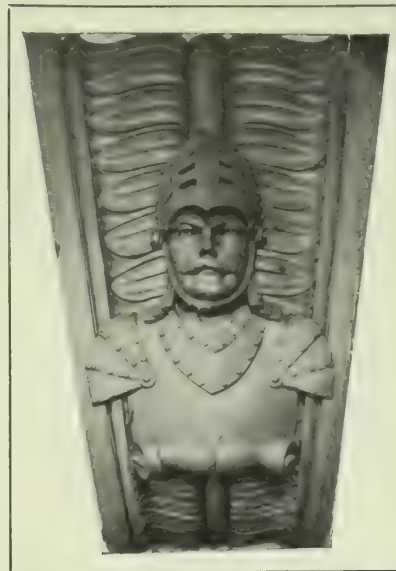
The Marist Brothers, a French Catholic order, is pre-

paring to erect buildings for a Catholic college on two hundred acres of land recently purchased near Lowell, Mass.

The Board of Trustees of the University of Illinois has accepted plans for two new buildings. One is a physics laboratory to cost about two hundred and fifty thousand dollars, the other, an extension of the natural history building, to cost about one hundred and fifty thousand dollars.

The venerable Fifth Avenue Hotel is now closed to patrons. In quickly destroying the building, the celebrated old hostelry will at least be spared a period of melancholy senility. A "sky-scraper" office building is to be erected on the site.

Messrs. McKim, Mead & White have been selected as architects for the new New York Post Office Building, which is to be located near the new terminal of the Pennsylvania Railroad, for which they are also the architects.



KEY BLOCK, V. M. C. A. BUILDING,
PATERSON, N. J.
Brick Terra Cotta and Tile Co., Makers.



SELLWOOD BUILDING, DULUTH, MINN.
William A. Hunt, Architect.
Built of dark gray standard brick, made by Columbus Brick and Terra Cotta Company.



ORNAMENT OVER NINTH-STORY
WINDOWS, MONTELEONE
HOTEL, NEW ORLEANS.
Toledano & Wogan, Architects.
Northwestern Terra Cotta Co.,
Makers.

The first prize of \$5,000 for the best set of plans submitted for the proposed \$300,000 Capitol building of San Juan, Porto Rico, has been awarded to Frank Edson Perkins, architect, formerly of Boston, but now of New York. Ritchie Abbott of New York received the second prize of \$2,000 and H. L. Beadel of New York the third prize of \$1,500. There were 135 competitors.

On March 28, the Columbus Society of Architects was organized at Columbus, Ohio, with a charter membership of forty-one practicing architects. The object of the society is for the advancement of interest in architecture and the allied arts, the professional improvement of its members, and to bring into social relations those interested in these objects. President, A. M. Allen; Vice-President, C. A. Stribling; Secretary-Treasurer, Fred W. Elliott; Directors, Frank L. Packard, C. E. Richards, Edwin E. Pruitt, C. E. Bellows.



PUBLIC BATHS, CLEVELAND.
E. H. Beier, Architect.
Roofed with Ludowici-Celadon Tile.

The terra cotta used in the Normal and Latin School Group, Boston, illustrated in *THE BRICKBUILDER* for March, was supplied by the Atlantic Terra Cotta Co.

Edward W. Robinson, vice-president of the Hartford Faience Co., has opened an office at 1123 Broadway, New York, and will take personal charge of the sales department of that Company. Mr. Robinson also represents Sherwin & Cotton and Carter & Company of England, well-known manufacturers of high-grade wall and floor tiles.

Carter, Black & Ayers of New York are introducing into the market a vitrified hollow building block. Being salt-glazed they are exceptionally well adapted to withstand dampness and for foundation work. Both sides of the blocks are scored so that stucco when ap-

plied holds firmly. These blocks are suitable for houses, garages, manufacturing buildings and the like.

The New Jersey Terra Cotta Company is supplying the architectural terra cotta for the following new buildings: Apartment house, Park Avenue, New York, C. W. Buckham, architect; apartment house, Riverside Drive, New York, H. C. Pelton, architect; apartment house, Madison Avenue, New York, W. E. Mowbray, architect; Seaman's Home, West Street, New York, Boring & Tilton, architects; Soldiers' Home, Chelsea, Mass., Clough & Wardner, architects; Town Hall, Skowhegan, Me., H. C. and J. H. Stevens, architects; Lincoln School, Orange, N. J., W. M. Tubby, architect.

POSITION WANTED—Young man 22 years of age, five years' practical architectural experience, desires position as traveling representative, preferably in New England, for some article in the building line. Moderate salary. Address "Salesman," care of *THE BRICKBUILDER*.

POSITION WANTED—Architect, 28, University graduate, experienced in practical office work and superintendence, returning from foreign travel and study, wishes permanent engagement, with future prospects as superintendent of construction, practical business manager or representative with architect or construction company. Address "University Graduate," care *THE BRICKBUILDER*.

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The changes in this edition consist of the correction of all typographical errors reported to the publishers, and the rewriting of Chapters XXIII and XXIV. This work has been done by Rudolph P. Miller. Professor Alvah H. Sabin has also brought the section on Paints and Varnishes up to date.

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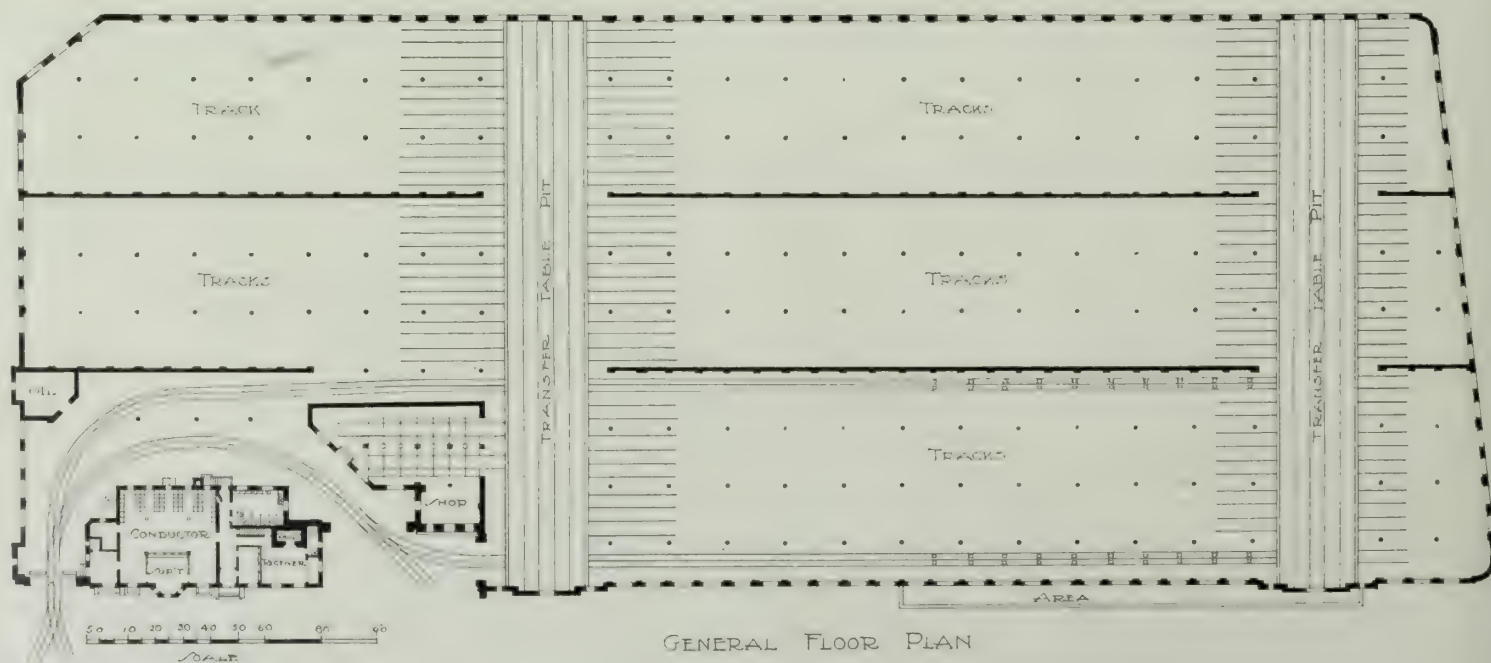
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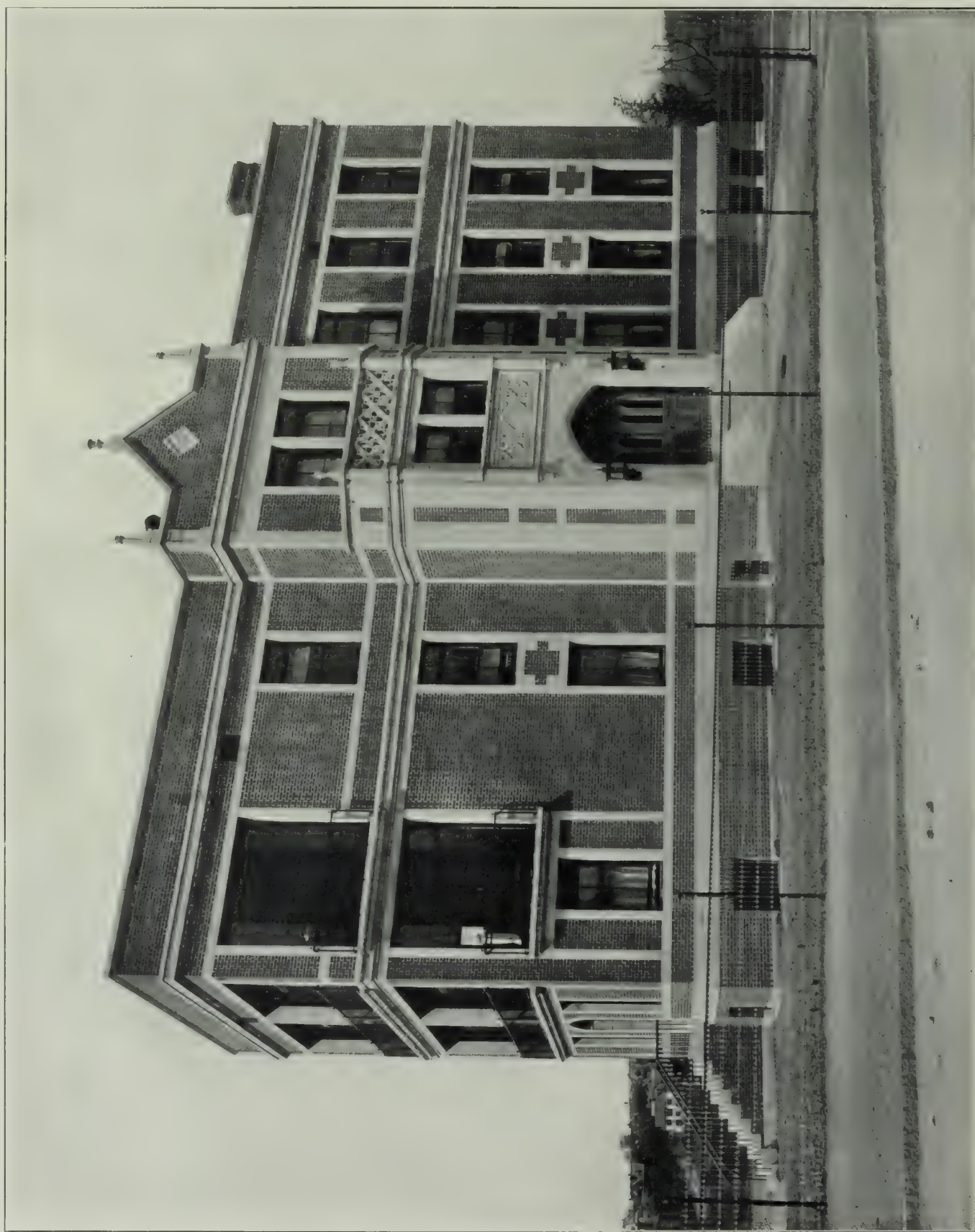
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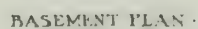
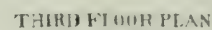
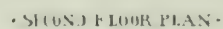
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CHARLES BRUEN PERKINS, ARCHITECT.



CHARLES BRUEN PERKINS, ARCHITECT.



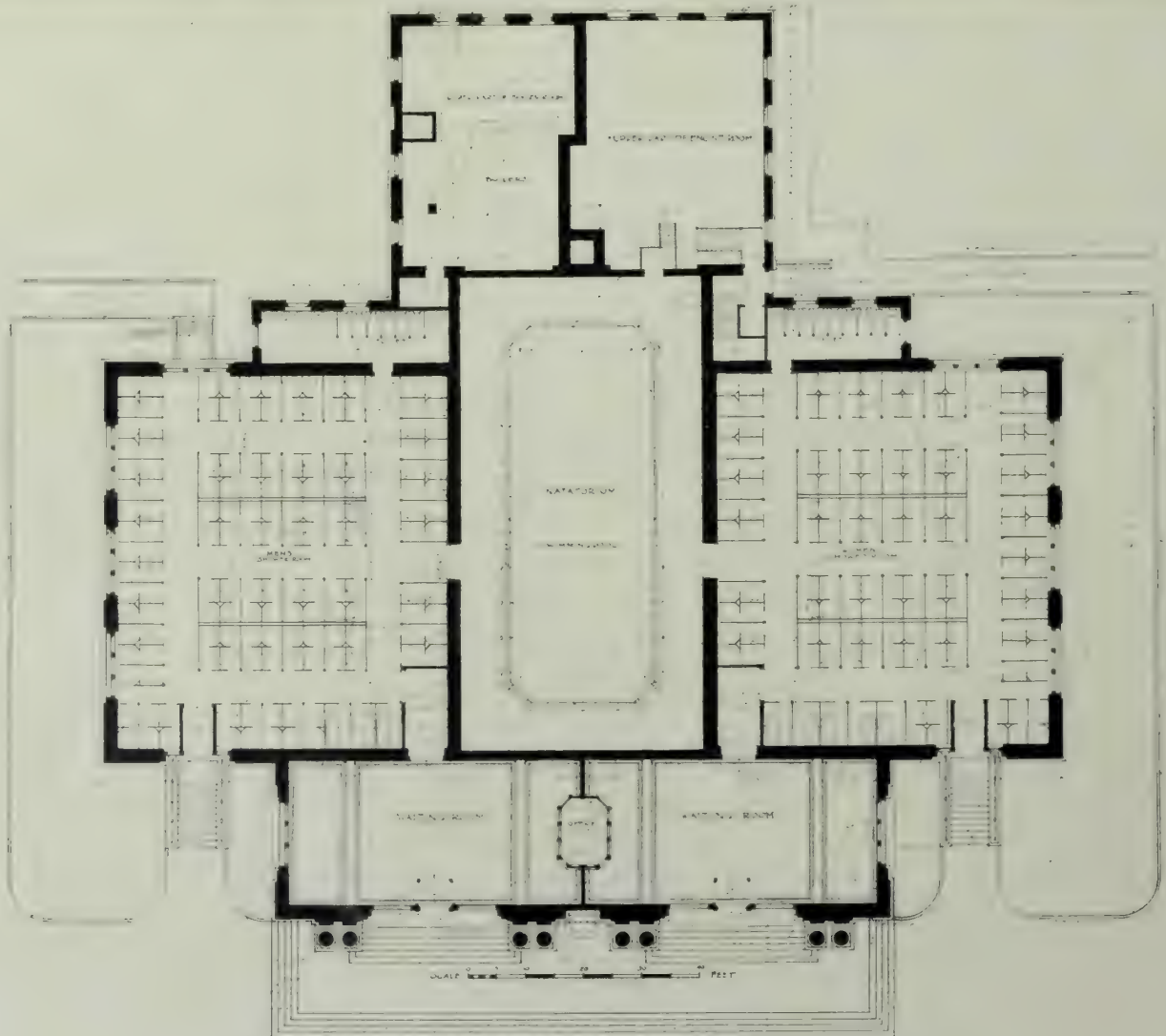
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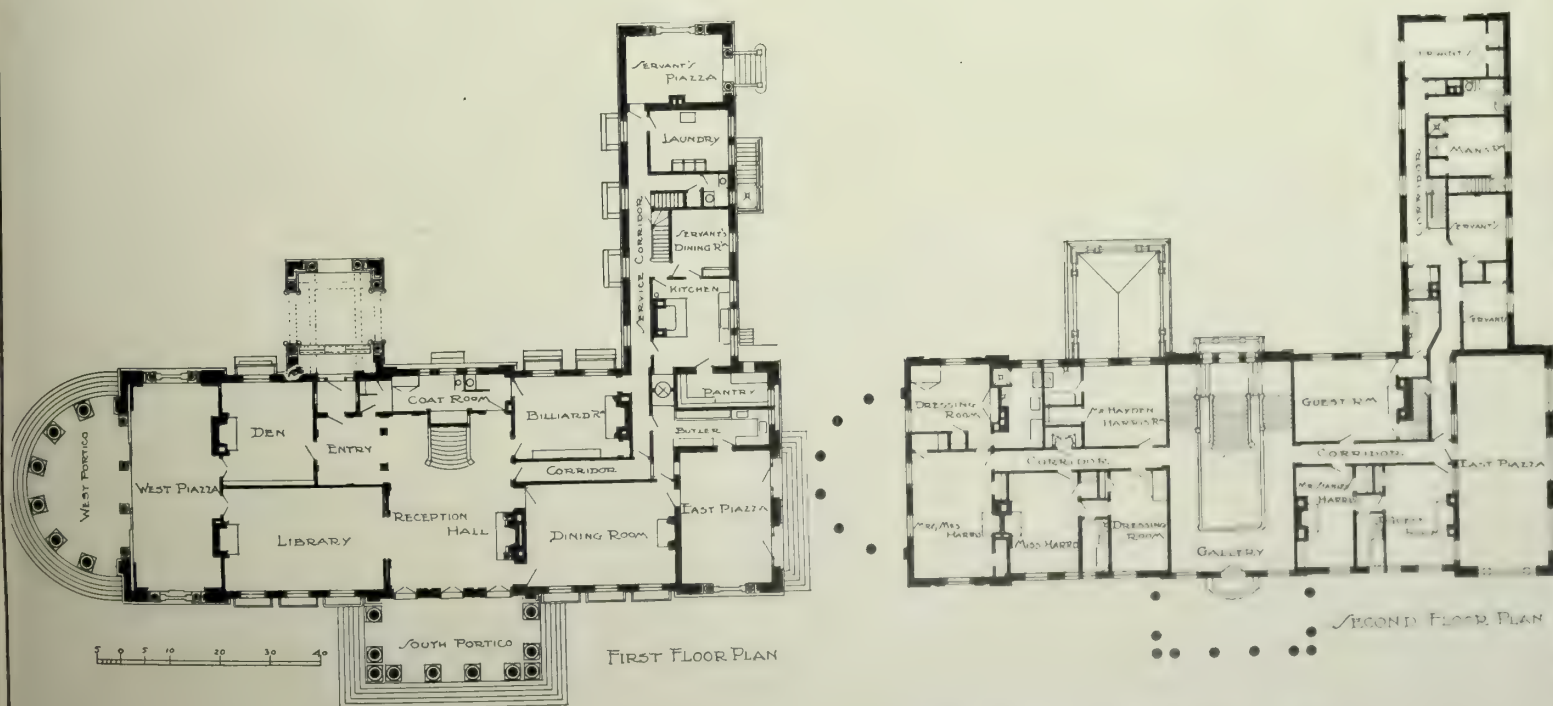


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WILLIAM MARTIN AIKEN AND ARNOLD W. BRUNNER, ARCHITECTS



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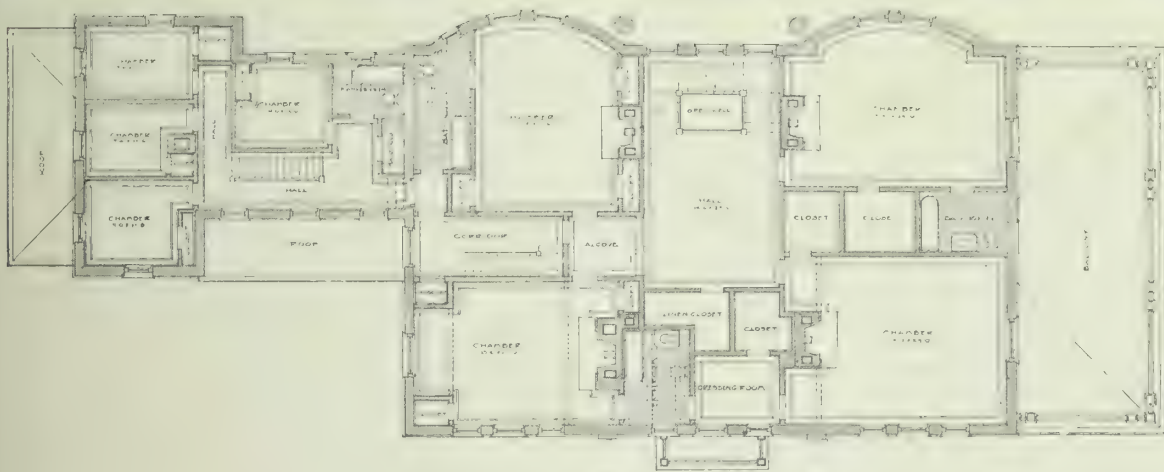
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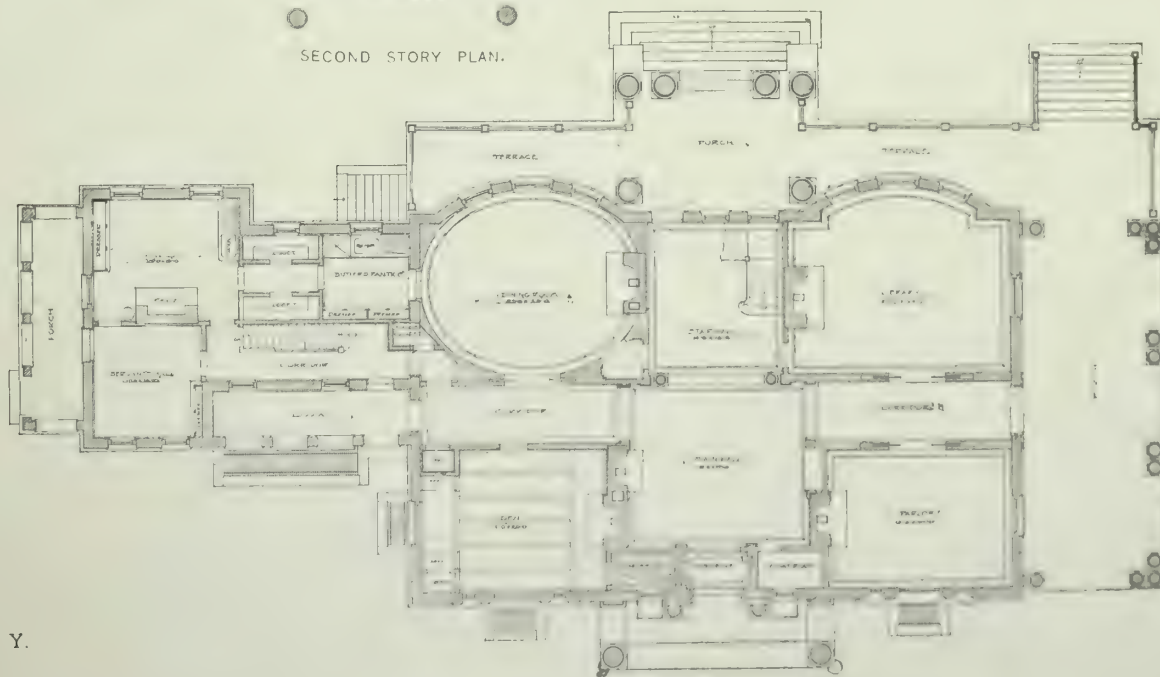
HOUSE AT MAMARONECK, N. Y.

WILLIAM A. BORING, ARCHITECT





SECOND STORY PLAN.



FIRST STORY PLAN

HOUSE AT
MAMARONECK, N. Y.
WILLIAM A. BORING,
ARCHITECT.



FIRST FLOOR



THE STABLE.

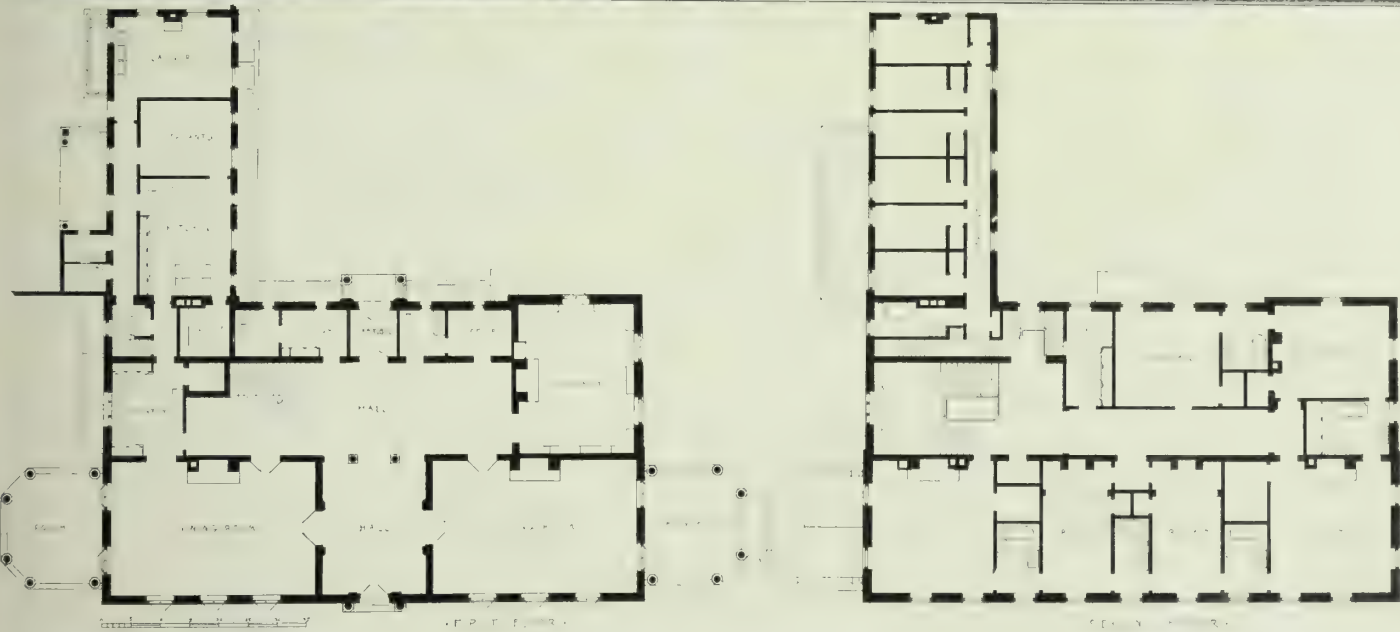


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THE BRICKBUILDER

VOLUME XVII

MAY 1908

NUMBER 5

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WEST FRONT, CISTERCIAN MONASTERY, CHORIN, GERMANY.

THE BRICKBUILDER

VOL. 17 NO. 5 DEVOTED TO THE INTERESTS OF ARCHITECTURE IN MATERIALS OF CLAY MAY 1908

The American Theater — VI.

BALCONY CONSTRUCTION.

BY CLARENCE H. BLACKALL.

THE constructive problems involved in the planning of a theater are such as are encountered in any modern fireproof building, with the exception of the framing of the balcony and gallery and the forming of the stepping of the various floors to receive the seats. These factors call for special consideration on account of the necessity of avoiding any columns which could obstruct the view, as well as on account of the specific requirements of fireproofing.

Columns supporting a gallery or balcony do not of themselves constitute a serious obstruction to the view of the stage. Before the days of steel construction they were accepted as a matter of course, and even in such

are even tolerated among the seats of the balcony. In some cases it is possible to omit columns in the balcony by suspending the gallery by rods dropped from the trusses or girders over the main ceiling, as has been done in some of the best of the New York theaters, but such an expedient is by no means satisfactory in appearance and is hardly justified by the resulting economy. The best way is to omit columns entirely.

There is almost no limit to the amount of overhang which can be constructed with properly designed cantilevers. Figure 1 shows one case where the overhang was nearly 27 feet, the steel work averaging less than twenty-three pounds per square foot. In this case the cantilevers were only 7 feet on centers over the bearings, converging to nearly 3 feet at the end, and were connected by concentric lines of wooden floor beams which carried the flooring, the building not being of fireproof construction.

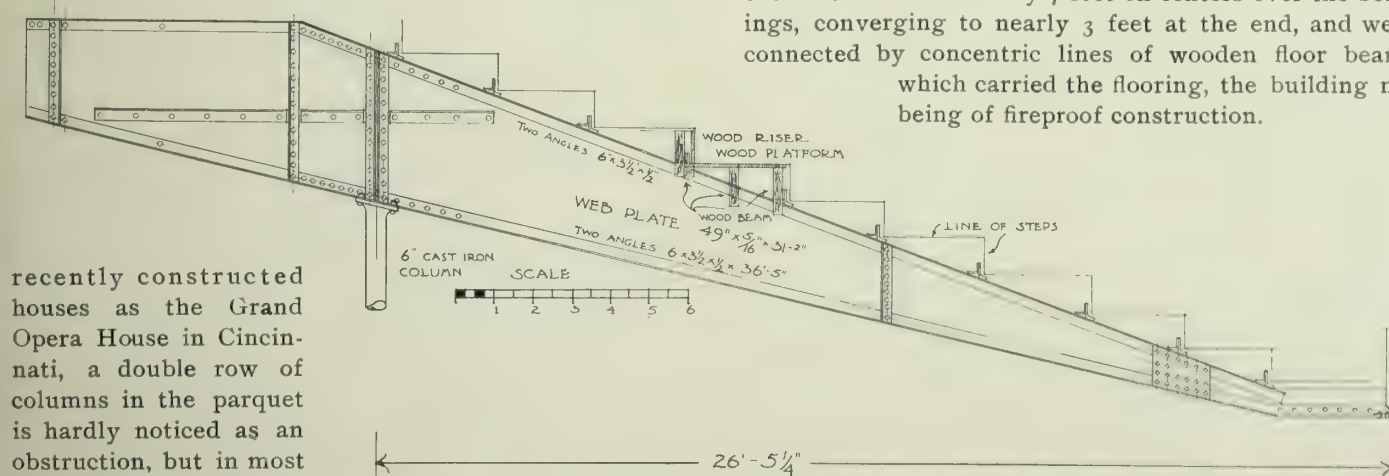


FIG. 1. BALCONY CONSTRUCTION, AUDITORIUM, UNIVERSITY OF ILLINOIS.

recently constructed houses as the Grand Opera House in Cincinnati, a double row of columns in the parquet is hardly noticed as an obstruction, but in most of the modern houses the entire absence of columns is considered

an added virtue which is worth all it costs. The cost of a cantilever construction is, however, by no means excessive. The weight of such construction usually amounts to a minimum of about twenty pounds per square foot for cantilevers projecting not over 18 or 20 feet, resting on girders spanning not over 65 feet between the side walls. These weights include only the steel work, and as they increase very rapidly as the spans are increased, it becomes quite an object for study to reduce the overhangs of the balconies to the most strict minimum. Hence, while columns may be vigorously excluded from the body of the parquet, they are permissible at the rear of the seats on the line of the standing-up rail, and

Figure 2 shows the typical construction in the Nixon Theater, Pittsburg, a fireproof structure. The cantilevers are spaced a considerable distance apart and are braced by connecting channels, while the risers for the steppings are formed with light latticed girders, built on a sweep and resting on the cantilevers.

Figure 3 shows in detail the balcony construction of the Colonial Theater, Boston. The cantilever columns are on the line of the stand-up rail at the back of the rearmost row of seats of the orchestra. The columns are connected by a girder bent in plan following the radius of the stand-up rail. Bracketing out from this girder are the cantilevers, projecting nearly 15 feet and ending with a double angle iron bent

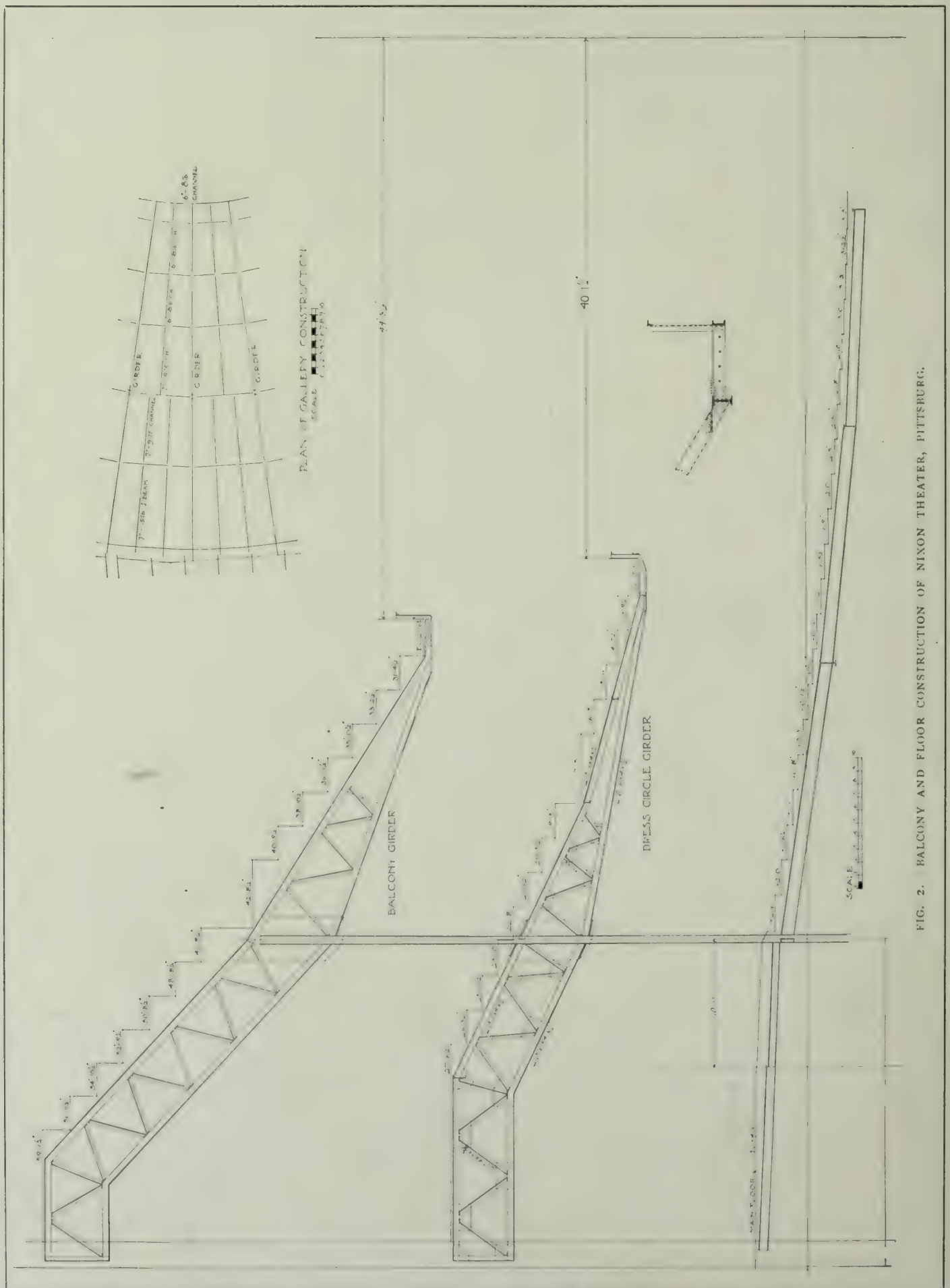
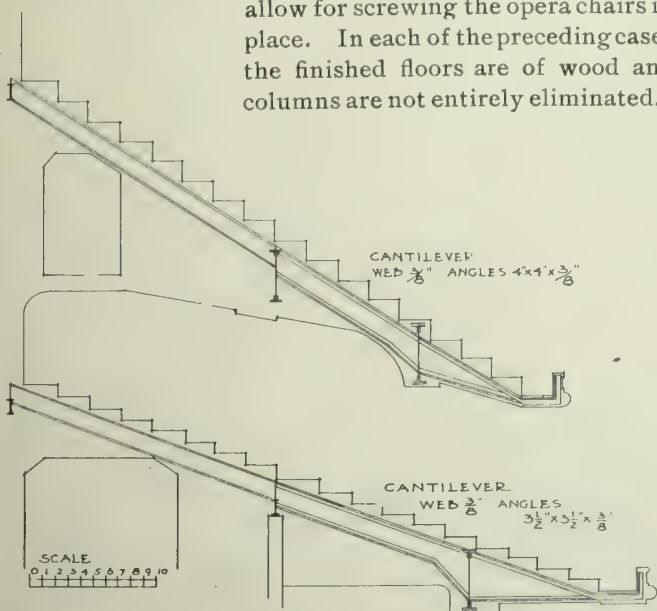


FIG. 2. BALCONY AND FLOOR CONSTRUCTION OF NIXON THEATER, PITTSBURG.

up to form the support for the rail. The cantilever on the rear of the girder is carried across to the wall of the foyer and thence across to the foyer ceiling, receiving its anchorage from the outer wall of the building. The columns of the gallery rest upon the balcony cantilevers, these columns in turn supporting the cantilevers of the gallery. To be strictly consistent, these balcony columns should be omitted and the cantilevers supported entirely by the two masonry walls, but these columns can be made quite small, four or five inches in diameter, and do not really constitute a very serious interference with sight. The cross girder upon which the balcony cantilevers are built is not only curved in plan but it also pitches towards the stage each way and requires most careful designing and has to be braced for a side bending or twisting strain as well as for the transverse load. The cantilevers are spaced from 8 to 12 feet apart and are connected by curved lattice work corresponding to the outlines of the balcony steps. A nailing strip is bolted to the top of each lattice, and a concrete tread and riser cast in place with steel reinforcement, the $1\frac{1}{4}$ -inch upper floors being nailed to radial sleepers buried in the concrete, while the riser is nailed to the floor boards above and below. The floor boards are made $1\frac{1}{4}$ inch so as to allow for screwing the opera chairs in place. In each of the preceding cases the finished floors are of wood and columns are not entirely eliminated.



SECTION ON LINE A-A

FIG. 4. BALCONY CONSTRUCTION, NEW LYCEUM THEATER, BOSTON.

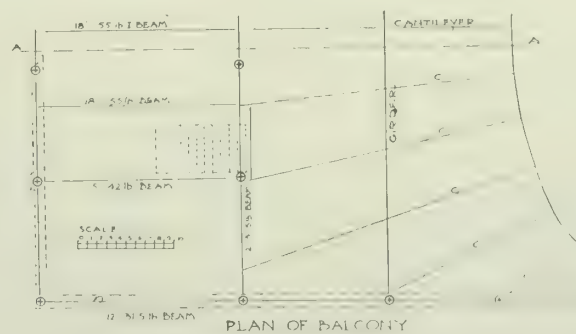
Figure 4 shows the construction adopted in the new Lyceum Theater, Boston. There are no columns visible anywhere. The cantilevers are carried by heavy cross-girders spanning from wall to wall, or are bracketed out from the wall columns. The girders are all concealed in the spaces below the balcony and gallery, and the projection of the cantilevers is reduced to a minimum. No wood of any sort is used in connection with this construction. The cantilevers are connected by concentric

lines of reinforced concrete beams, which form the faces of the risers and are cast homogeneous with the reinforced concrete platforms. Later, the exposed surfaces are skimmed with a granolithic finish. Ruddy wall plugs are built into the platforms, into which are worked the screws holding the seats. In some of the aisles the

surfaces are covered with linoleum, pasted directly to the concrete with fish glue cement, and where carpets are thought expedient, they are tacked to three-quarter inch beveled nailing strips built into the concrete. The steel work of this construction weighs a trifle less than twenty pounds per square foot.

A construction entirely of reinforced concrete may suggest itself as a possibility, but reinforced concrete cantilevers of such large dimensions would be clumsy and, of course, very heavy in proportion to their strength. In some small lecture halls and audience rooms the galleries or balconies have been formed with the Guastavino tile construction, turned between the cantilevers, upon which the steppings are built up in concrete, but so far as known, this construction has never been applied to a theater.

The building laws of most cities prescribe provision for a live load on theater floors of one hundred and twenty-five pounds per square foot. In figuring the cantilevers, it must be remembered that at times all of the live load may be concentrated on the overhanging arm, producing thereby a large negative moment on the opposite side of the girder or wall, for which proper provision must be made. In the first instance illustrated herein (Fig. 1) the negative moment was as high as



PLAN OF BALCONY

117,500 pounds. One hundred and twenty-five pounds per square foot is, however, way on the safe side. It is a physical impossibility to crowd people more closely than the seats themselves, — or at the rate of one person to about four square feet, equivalent to not over forty pounds per square foot.

It is absolutely essential that when the balcony construction is assembled in place, the fronts of the cantilevers shall be exactly where they were planned for,

even the slightest variation sufficing to throw out the lines of the balcony front. Consequently it is a very nice operation to set these in position, and it is usually quite desirable to have the connections so planned that some adjustment can be made after the cantilevers are in place. In the construction of the Colonial Theater this was effected by setting the cantilevers on shores the exact heights required, and then putting on the splice plates for top chord over the girder by means of field rivets, the holes being drilled after the cantilever is set. A very simple device has been used by the writer on one occasion with good success. In this instance each cantilever rests directly upon a column carried down to the basement, the cantilevers being braced between themselves by light lattice struts. The foot of each column rests upon a broad, slotted plate, in which is inserted the cap of a jack screw. The columns supporting the cantilevers are of cast iron six inches in diameter, leaving a four-inch hollow space. The jack screw rests upon a bed plate, and the screw is free to work up and down in the hollow space of the column. In setting the columns the foundation is prepared as nearly at the right level as possible, the lower plate set, the jack screw put on top of this, and the upper plate and the column put in position. When all the cantilevers are in place the jacks are screwed up or down, raising or depressing the overhang of the cantilevers until each is in its exact position. This can be done after the fireproofing is in place, so that the adjustment includes the

compensation for varying deflections. When the cantilevers are just right, the space between the upper and the under plates is filled solid with concrete, both the plates being made of a size proportioned to the load upon the concrete bed. The cost of this amounts to hardly more than fifteen or twenty dollars per column.

It is one of the inherited traditions of our building laws that even though a theater may be constructed throughout on the most approved fireproof system, nevertheless a proscenium wall of brick is insisted upon. Its value is very largely sentimental. As far as actual protection is concerned, it could be omitted entirely and the same degree of safety obtained by the use of suitable fireproof partition work between the members of the steel skeleton.

In a theater of a second-class or non-fireproof construction, however, the brick should be insisted upon for the proscenium wall and each opening therein should be most carefully guarded by fireproofed door or curtain. It goes without saying, that every theater should be fireproof. There are, however, many theaters built in small towns which are of second-hand construction throughout, and in which the local conditions, it is claimed, do not permit the expense of a fireproof building. Such structures, of course, are restricted in the amount of overhangs and are obliged to introduce post and girder construction to an extent which can be obviated entirely by the use of steel.

The Public Bath—IV.

OPEN AIR BATHS.

BY HAROLD WERNER AND AUGUST P. WINDOLPH.

OPEN air baths form a valuable auxiliary to the interior or all-year baths; we find three types of them—the river, seashore and park.

Although the river type was the earliest introduced in America, our municipalities have given, as a rule, but scant attention to this form of bathing, and the river bath of to-day shows but little improvement over early experiments.

The usual type consists of a platform placed upon floats, the pool being in the center of the platform, so constructed as to allow a free circulation of water. Grouped around the pool is a single row of simple dressing boxes, while the formality of the preliminary cleansing shower is not provided for.

For the past two decades New York City has kept in operation an extensive system of these river baths, but increased sewage and constant danger of contamination from this source has compelled the city authorities to condemn most of them.

Contamination of the water is a serious objection, and it has militated against this form of bath in many of our cities. In Paris the danger of contamination has been eliminated by disposing of the sewage in the Seine several miles below the city, while in Vienna the large

city river bath sets back some distance from the river's edge, and the water is introduced into the pool by means of a canal and sluiceway, which insures its being sanitary. On the Danube, Rhine and other European rivers, we find various devices for keeping the water clean; but until our cities solve the sewage disposal problem the river bath cannot play an important part in bath economy.

Seashore baths are more sanitary, and if convenient to

the municipality are of greater benefit to the community. There are several forms of the seashore type,—one, setting back from the ocean, receives the water through a canal, the same system of supply as used in some of the river baths. There are not many in this country and



TYPICAL OPEN AIR POOL, CHICAGO PUBLIC BATHS.



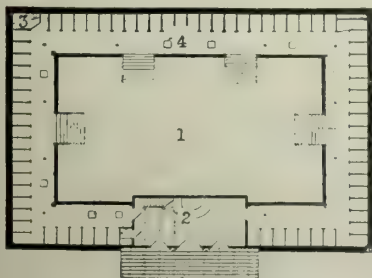
CASINO AND BATHING PAVILION FOR THE BOROUGH OF DEAL, NEW JERSEY.

they do not compare in size to those abroad. A celebrated European example is the Havre des Pas Bath on the Isle of Jersey. On this dangerous coast there has been much loss of life by drowning, and the municipality realized that its people must have a place to learn to swim, and, not having the means to provide interior bathing facilities, they constructed a shore bath in the solid rock, which is in many ways the most unique bath in the world.

The pool was formed by blasting the rock to proper slopes, the interstices being filled in with concrete, which formed the side walls. The bottom was properly graded, allowing a shallow place for beginners and sufficient depth for diving.

The pool is entirely enclosed by a series of dressing rooms and a large number of shower baths. The area of the pool is enormous, covering nearly three acres. Water is introduced by means of a sluiceway, which controls a tidal movement, frequently exceeding forty feet, and which allows flushing and refilling the entire basin at every tide. In the colder seasons this pool, or rather miniature lake, is used for boating purposes.

We find other seashore baths on this island, similar in principle but considerably smaller, which have furthered the art of swimming and greatly reduced the loss of life.



PLAN OF RIVER BATH.

1. Pool. 2. Waiting Rooms.
3. Toilets. 4. Dressing Rooms and Corridor.



SHERMAN PARK BATH, CHICAGO.

1. Closed Gymnasium and Shower Bath. 2. Men's Open Air Gymnasium. 3. Swimming Pool. 4. Dressing Compartments and Locker for Pool. 5. Children's Pool and Field. 6. Women's Open Air Gymnasium. 7. Play Ground.

ing, as he is compelled to do in the ordinary rectangular pool. The dressing rooms enclose the basin and are provided with a single runway, the customary English arrangement.

A few attempts have been made along the rocky coast of New England to provide baths of this character, but they are not municipal, and as a rule are small structures which call for no special comment.

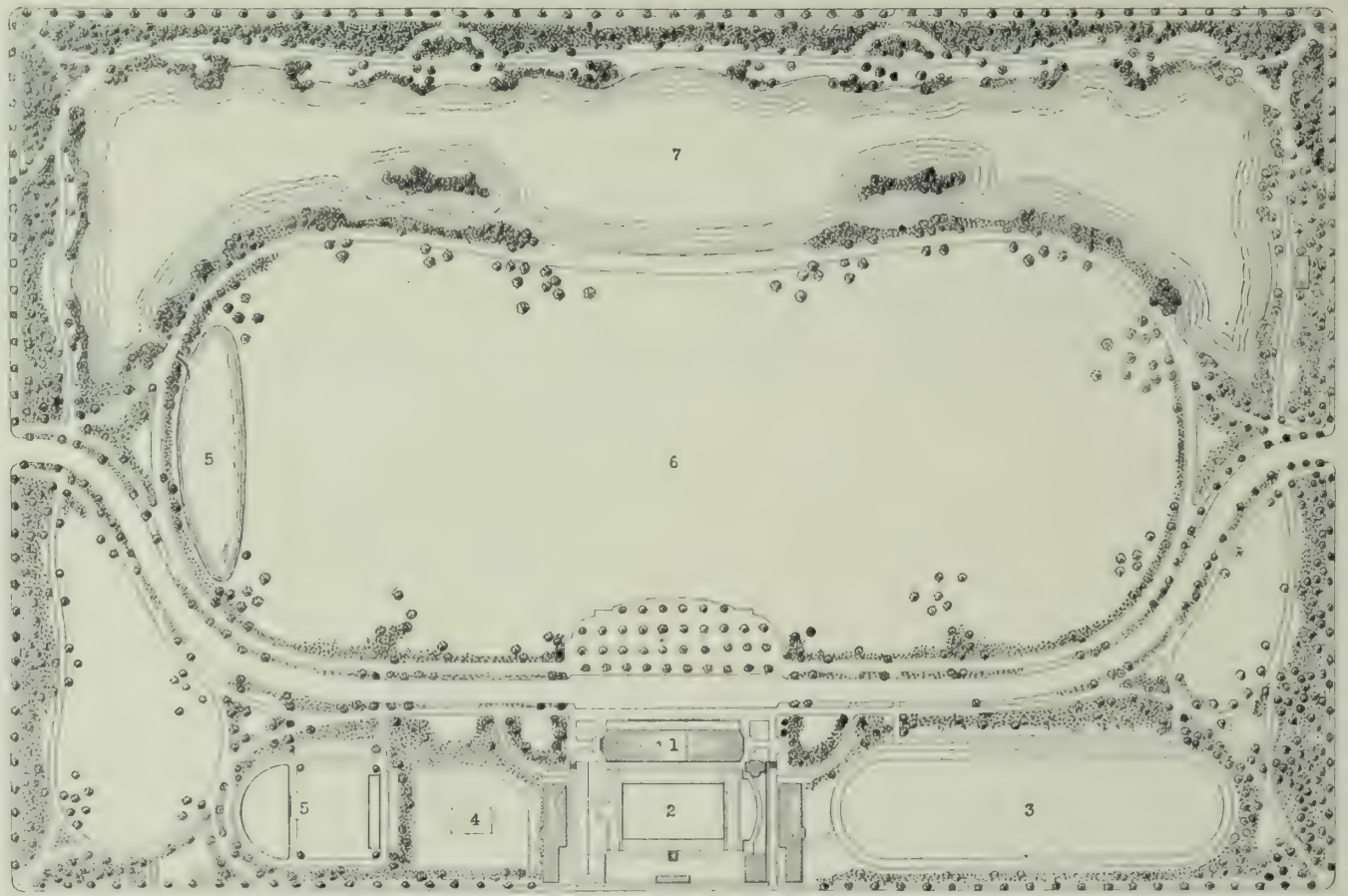
Occasionally we find shore baths with bathing and dressing facilities entirely enclosed as in the interior type. This is true of the Sutro Baths situated on the shores of the Pacific, which consist of no less than six pools, entirely enclosed with glass. A large spectators' balcony has been provided, with adjoining lounging and refreshment rooms. The pools are supplied with salt water by means of a service main, which extends several hundred yards into the ocean. While the pools are usually filled by the tidal movement, an auxiliary set of pumps supply tanks, which are used under certain tidal conditions. The water in the larger pool is kept

at the normal sea temperature, but the smaller pools are heated to varying degrees of temperature. The large pool is nearly five hundred feet long, and with the smaller ones contain a million gallons of water, with a total bathing capacity of two thousand units, comparing favorably in size to the largest of the early Roman institutions.

Another example of the seashore bath, with the dressing and shower facilities enclosed, but with open sea bathing, is the State Bath at Revere, Mass. The plan is simple and the building is well adapted to handling without confusion a large number of bathers at one time. The administration building is in the center, flanked by dressing-room yards, which are enclosed with brick walls. The dressing rooms have a rather novel arrangement, being planned in two tiers,

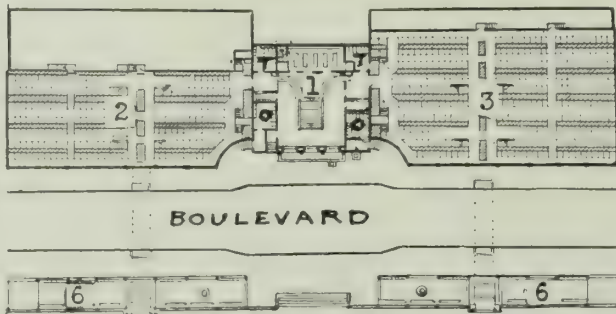


SUTRO BATHS, SAN FRANCISCO.

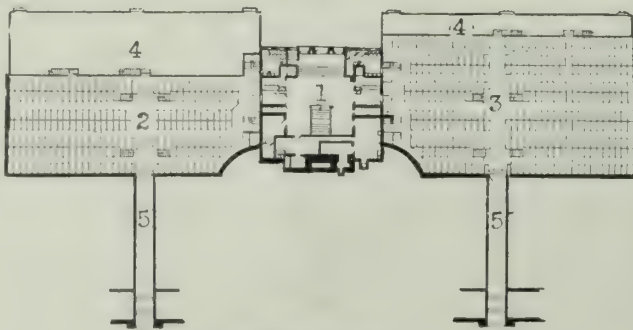


OGDEN PARK BATH, CHICAGO.

1. Closed Gymnasium and Shower Baths. 2. Swimming Pool. 3. Men's Open Air Gymnasium. 4. Women's Open Air Gymnasium.
5. Children's Pool. 6. Field. 7. Lagoon.

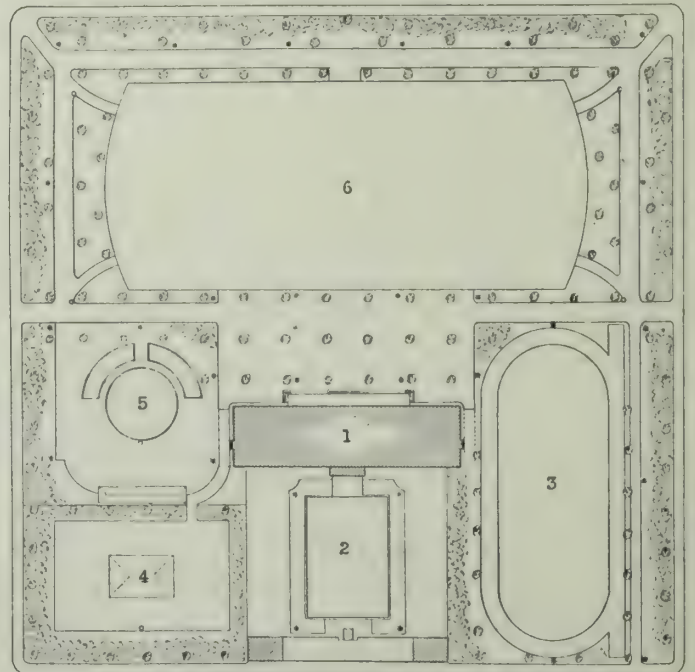


FIRST FLOOR PLAN.



STATE BATH, REVERE BEACH, MASS.

1. Waiting Room. 2. Women's Dressing Rooms. 3. Men's Dressing Rooms. 4. Yards. 5. Subway under Boulevard to Beach. 6. Open Pavilions. T. Toilets. O. Offices.



DAVIS SQUARE PARK BATH, CHICAGO.

1. Closed Gymnasium and Showers. 2. Swimming Pool. 3. Men's Open Air Gymnasium. 4. Women's Open Air Gymnasium. 5. Children's Pool. 6. Field.

so that the passageways of the lower stories come between the backs of the dressing rooms of the second story. This leaves all the passageways clear to the sky, providing the necessary light and air for all of the dressing rooms. The right wing is exclusively for men and the left for women. The basement floor of the administration building contains, besides the main entrance hall and dressing rooms, toilets, storage rooms, an emergency hospital and the boiler room. The upper floor contains the administration rooms and a thoroughly equipped laundry for the care of bathing suits. The subways provide direct access, under the highway, to the beach. The general plan and arrangement could hardly be improved, but its facilities for the public could be increased



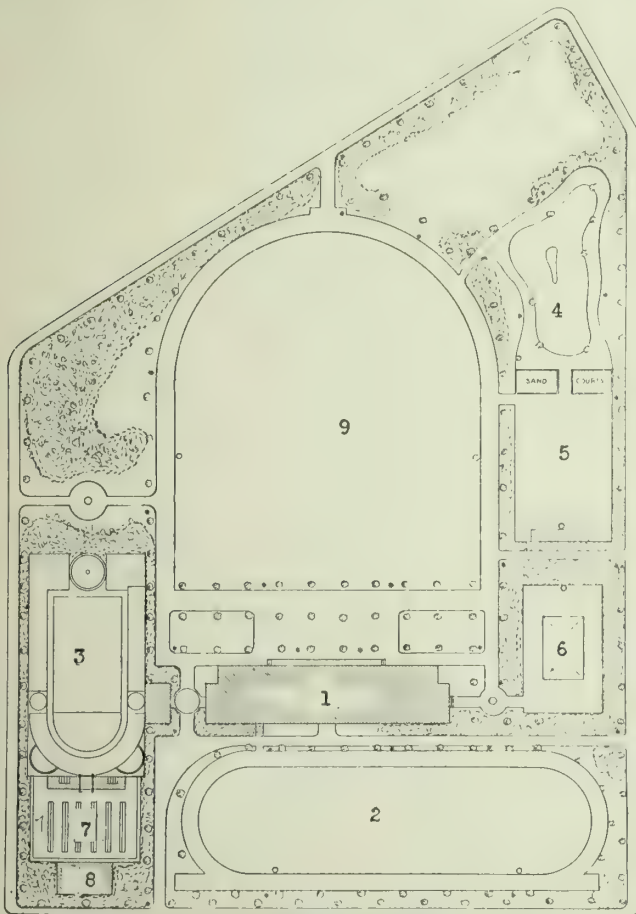
STATE BATH, REVERE BEACH, MASS.

bathing, they have an enclosed gymnasium as well as lecture and reading rooms for use during the winter months. These baths are situated in the densely populated sections of the city and their total yearly attendance is in excess of the interior baths.

The Mark White Square Park Bath, Chicago, is an excellent example of this type. The enclosed gymnasium building, the men's open gymnasium and field, are on axis, flanked on the left by the men's swimming pool and on the right by the children's pool and women's open-air gymnasium. The main pool is of ample size, with graded depths, and the water is thoroughly sanitary, as the supply is taken from the city mains, and the pool is constantly being replenished. Two stories of dressing compartments are at the head of the pool and preliminary cleansing shower baths have been provided for. The power plant is in the rear of the dressing wing. The gymnasium or field house has shower-bath facilities supplied with warm water for all-year bathing. A considerable part of the building is utilized for a lecture hall and reading rooms.

The Davis Square Park Bath, Chicago, of about the same capacity as the one in White Square, offers similar facilities, although in this instance we find the main pool and gymnasium building on axis.

The Sherman Park Bath, Chicago, covers a considerably larger plot than the other two mentioned. Here the dressing-room building nearly encloses the



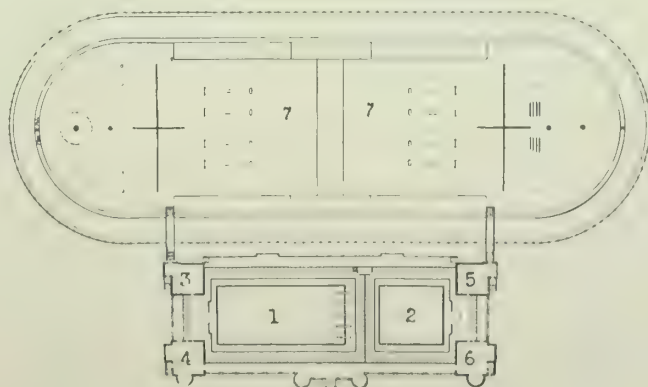
MARK WHITE SQUARE PARK BATH, CHICAGO.

1. Closed Gymnasium and Shower Baths. 2. Men's Open Air Gymnasium. 3. Swimming Pool. 4. Children's Pool. 5. Field. 6. Women's Gymnasium. 7. Dressing Compartments. 8. Boiler and Power House. 9. Field.

by utilizing at least part of the building for bathing purposes during the winter months. This is a criticism which may be applied to all seashore baths, with one or two exceptions.

In the park baths we find part of the facilities available during the winter months, and, as a rule, gymnasiums are combined with them.

Boston has a few examples of this type and a few isolated ones are found in cities of the second and third class. It is in Chicago, however, that we find a complete system of park baths in operation, and, while strictly speaking they are of the open-air type, they suggest the interior baths, because, in addition to their provisions for



DOUGLAS PARK BATH, CHICAGO.

1. Men's Swimming Pool. 2. Women's Swimming Pool. 3. Men's Dressing Room. 4. Men's Waiting Room. 5. Women's Dressing Room. 6. Women's Waiting Room. 7. Open Air Gymnasium.

pool and the sexes are separated by the intervening buildings.

In the Ogden Park Bath, Chicago, the pool is enclosed on three sides, affording protection to the bathers from the prevailing winds. In addition to the children's pool there is a larger natural pool which adjoins the park lagoon.

The Douglas Park Municipal Bath, Chicago, differs from the usual type, the gymnasium, dressing and shower rooms being in one building, which encloses poolbaths for both sexes. The pools are completely surrounded by the dressing rooms, the gangway being separated from the pool only by a guard rail. The prelim-

inary cleansing showers are at the head of the pools and are to be commended for their liberal size, — fifty-five by one hundred and twenty feet for the men's basin and

fifty-five by sixty feet for the women's. The depths range from two feet six at the shallowest end to eight feet at the deepest. Some of the waste water from these pools is returned to the boilers and the balance emptied by gravity into the park lagoons.

Chicago has operated this system of park baths for only a few years, but has amply proved that they are in conjunction with interior baths, a val-

uable asset for all large cities, tending to the elevation of both the moral and physical well-being of the community.



SWIMMING POOL, WISSAHICKEN HEIGHTS CLUB, PHILADELPHIA.

A Third-Floor Swimming Pool.

THE swimming pool in the new building of the Racquet Club in Philadelphia is sustained above the beautiful central hall of the ground floor. This hall is square and is comprised within twelve vertical supports extending the height of the building. Its ceiling, which is of plaster and coved, is elaborately enriched with painted and relief ornament. Every precaution was necessary to protect this ceiling from possible injury which might be caused by the large body of water upheld above.

The twelve structural columns already mentioned occur, one at each corner of the tank and two midway of each side. The four corner columns are tied together by plate girders 3 feet deep; and from two intermediate columns on each side to two corresponding columns opposite extend similar girders. Across these girders 15-inch I-beams are laid about 18 inches apart. Upon this foundation the steel tank was set. The tank is 35 feet square inside and contains about 7,962 cubic feet of water 4 feet 6 inches deep at one end and 8 feet 6 inches at the other. When the tank is thus filled the weight of the contents is nearly 25 tons and the surface of the water is 7½ inches below the terrazzo floor surrounding the pool.

The tank is lined and waterproofed as follows: Upon the steel bottom 3 inches of concrete was laid, then 1 inch of asphalt mastic, then 3 inches of concrete upon which a floor of circular tiles ¾ inches in diameter was

laid in cement. On three walls of the tank including the shallow end 1½ inches of asphalt mastic was laid against the steel, then 4 inches of brick laid in the mastic, and on the brick 3 x 6-inch tiles were laid in cement. On the wall at the deep end the brick is 9 inches thick. The mastic was hot when the bricks were laid, and the front of each joint was filled with it, the back being left until a height of five courses was reached. Then the hot material was poured in behind and made to thoroughly fill and seal the space. Five more courses were laid and similarly grouted, then five more and so on. At the top, the mastic was turned over the edge of the tank, under a marble coping 5½ inches high and continued over the entire area surrounding the pool. A layer of concrete covered with terrazzo produced the finished floor and brought it up flush with the coping.

The space between the bottom of the tank and the ceiling of the hall underneath is sufficiently high for a man to walk. The floor of this space is protected by means of a coat of concrete and one of asphalt mastic, and the chamber is ventilated through several openings provided at each side. Water is pumped into the pool from an artesian well bored for the express use of the building. The piping is also so arranged that the pool may be filled from the city water main. The pool is drained directly to the street sewer.

Dalecross Grange and Other Houses.

Crouch and Butler, Architects.

BY MICHAEL BUNNEY.

LIKE most of the large English towns, with the notable exception of London, Birmingham has the advantage of possessing in its vicinity a tract of fine upland country within half an hour's rail journey of the central parts of the city and yet so little spoiled and so little in danger of being spoiled that it will provide for many years to come a playground and a dwelling place for those whose work lies in the grimy surroundings of this industrial center.

has been carefully guarded by judicious laying out of the different estates already under development and the preservation as open spaces for all time of large tracts where the natural beauties are more particularly pronounced.

Barnt Green and other parts nearest to the railway and most accessible to Birmingham have naturally become more peopled with houses than the remoter hills, but even here the estates are so large and the distances

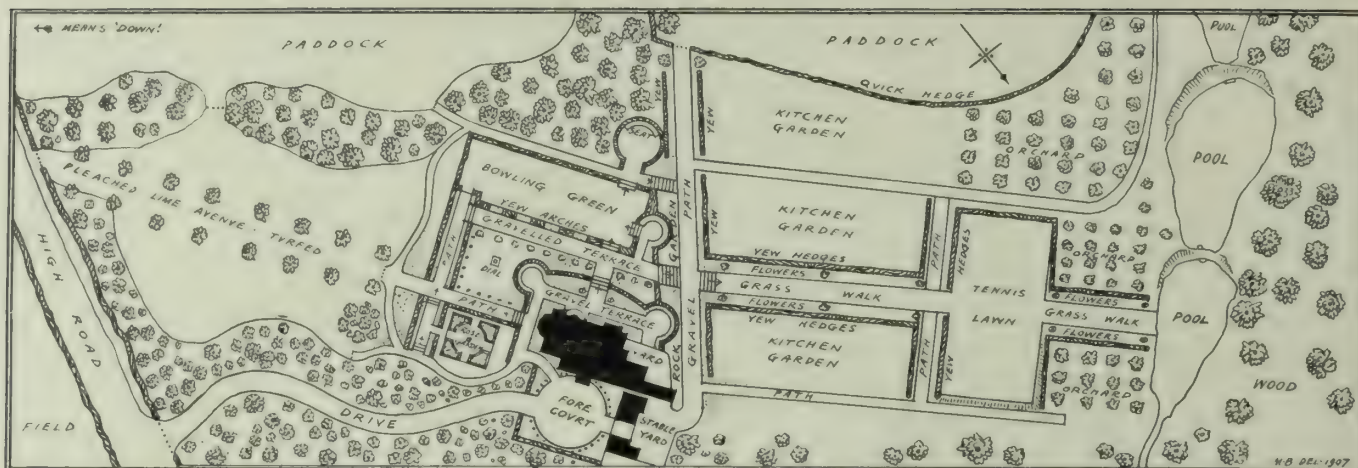


HOUSE IN PRITCHATTS ROAD, EDGBASTON.

It is, of course, inevitable that such districts as the Lickey Hills should be more or less monopolized by the wealthier resident to the partial exclusion of those whose moral claim to a share is just as great, still there is compensation in this, that large houses, with their necessarily extensive grounds, do, to a great extent, prevent even that amount of crowding of the landscape which the presence of smaller buildings must perforce bring about. The character, therefore, and the appearance of these semi-urban districts and, most important of all, their woodlands are preserved unspoiled. The charm of the Lickey Hills is still the old forest growth, and a great deal of this

between the buildings so carefully kept that the obtrusion of bricks and mortar upon the lovely undulating woodlands is reduced to a minimum. It is in this district that Dalecross Grange is situated.

Architects of country houses are lucky when they get fine natural surroundings amongst which to place their work, and doubly so when those surroundings give a keynote for any constructional method that can be adopted. Half the unsatisfactory work that one sees is the fruit of a perversity that ignores local characteristics of construction. Even though a thorough adherence to half timber methods may be inadvisable now that the use of other



GROUND PLAN, DALECROSS GRANGE, BARNT GREEN, WORCESTERSHIRE.

materials has so much developed, it is surely better, in the forest counties of the West, to build, in some measure at least, after the traditional fashion of John Abel and the great carpenters of Hereford and Leominster. There is just enough of this half timber element in Dalecross Grange to carry on this traditional sequence; the long, vertical timbers are typical, too, of West country work, though they are not, perhaps, either so pleasing in their architectural effect nor so sound from a constructional standpoint as is the shorter and more elaborate woodwork of the South.

Otherwise the house is essentially modern, but the two qualities have been skillfully blended so as to prevent any sense of antagonism.

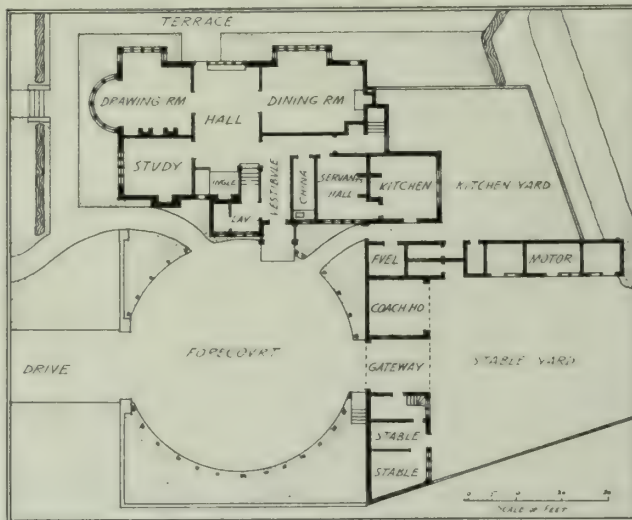
Within the house the timber construction, in oak, is again the ruling motive, and all the decoration and furniture is arranged to work in with this. Most of the furniture is old English oak, some of the pieces are remarkably fine specimens, and the carved paneling over the fireplaces in the hall and

dining-room is built up of old fragments worked in with the new. Those in the hall have biblical subjects sculptured in a quaint and simple way but with a great deal of character; they are probably of Dutch or German

workmanship. Needless to say this old carving and the furniture add very much to the satisfactory effect produced by these rooms, but even without these the general treatment would be successful.

The garden is still growing up, and, as is the case before maturity is reached, its condition is now rather ragged. The site, which slopes rapidly towards the south, affords plenty of opportunity for terracing at different levels, and full advantage of this has been taken by the architects, while the axial lines of the layout have been well enforced.

Nearer to Birmingham, Messrs. Crouch and Butler have recently completed two interesting houses. Villetta, at Berkswell, the smaller of the two, is notable for its whitewashed brickwork, a somewhat bold departure



PLAN OF HOUSE, DALECROSS GRANGE.



VILLETTE, BERKSWELL.



DINING-ROOM.



THE PORCH.



THE ROSE GARDEN IN WINTER.

DALECROSS GRANGE,
BARNT GREEN, WORCESTERSHIRE.

on a house of even this size, but the result in throwing up the charming center gable and chimney was well worth striving for by so simple a means.

Much the same kind of reasonable building is seen in the Edgbaston house with its clever grouping of gable, bay and chimney, the coarse Leicestershire bricks according well with the severe type of mullion and stonework generally. Inside the house is a treatment of constructional decoration in oak, similar to, though less ambitious than, that at Dalecross Grange.

Limewhiting for external use on either brickwork, plaster or roughcast is prepared as follows: Pure and clean unslaked lime is mixed with clean water to a consistency of cream, and while hot is freely spread with a large brush, never more than one coat being laid on.

This is the old and the simplest method of whitening, but in towns, or in otherwise dirty atmospheres, it requires renewal each spring, if the work is to keep a really fresh appearance.

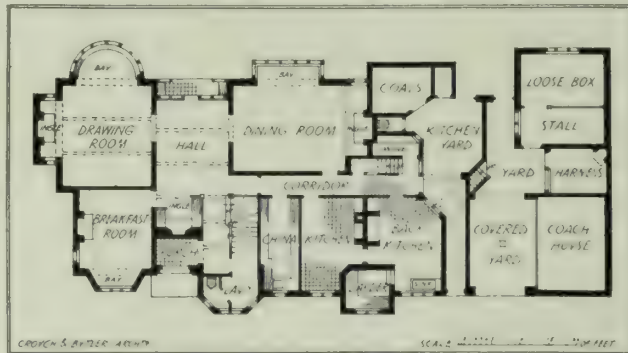
Ochres, pinks and Venetian reds were used as coloring pigments on many of the plastered cottages and farms in the south of England, and the presence of a pigment, of course, keeps the surface for some time from looking dingy. I have seen dark ochre-washed walls of twenty years' standing that still looked fairly fresh.

In clean, country air it would be well for the first three years on a new building, to whiten every spring, after that probably every third year would be sufficient.

The modern method of adding a small quantity of melted Russian tallow to the lime wash preserves the coat from flaking, the first symptom of

decay, and adds to its preservative quality as a covering to the material on which it is laid. The proportion is a pint of tallow to a bushel of lime.

Old limewhiting, before renewal, should not be washed off, but merely brushed with a stiff brush to remove the flaked particles,—it is the thick, uneven surface of oft-renewed limewhiting which gives such a pleasing texture to the wall surface.



PLAN OF HOUSE, PRITCHATTS ROAD, EDGBASTON.



ADMINISTRATION BUILDING, NAVAL ACADEMY, ANNAPOLIS, MD.
Ernest Flagg, Architect.

A Modern Paris Apartment House.

BY GEORGE B. FORD.

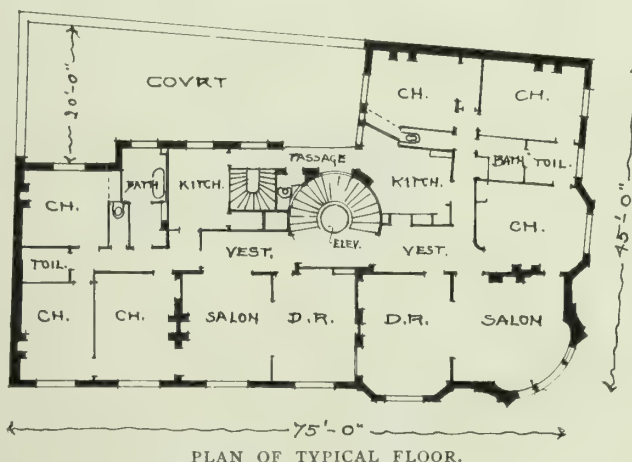
NEW ideas, if reasonable, are worth our attention. New solutions of old problems deserve study. Good or bad, they are bound to have some suggestion for us. In this connection, certain of the recent buildings in France demand more than a passing glance. The French architect rarely has more than one building to construct at a time. Being thus free, his best thought and study go into that building. It is only natural, therefore, that he arrives at some interesting results.

M. Deglane, well known as patron of an atelier and as architect of the Grand Palais, has just completed an apartment house in Paris, at the corner of the rue Grenelle and the rue St. Simon. This is in the very midst of the severely aristocratic Faubourg St. Germain, the quarter occupied by the exclusive families of the old French nobility. High walls and massive doors enclosing the forecourts, simple, dignified almost forbidding façades, narrow, somewhat winding streets, these characterize the neighborhood. Classic old friends from Cesar Daly greet you on every hand. A sense of well-being, of quiet and repose, stamp the region as one of true refinement. The financial condition of many of the younger branches of these old families does not permit of their occupying their ancestral homes. They can afford only a moderate rent. Their taste and training demand a certain restrained luxury of architectural treatment. Their social life demands that they remain in the neighborhood.

Such was M. Deglane's problem; to conform to these conditions; to fulfill these requirements, all on a lot 75 by 45 with two apartments, each of six rooms, on one floor. The apartments on any given floor, in accordance with an unwritten French law, have to be of nearly equal rental value. The plan has no especial interest for the American architect. Granting the habits of the French family life, it is well arranged. It is further unquestionably ingenious in its economical use of the space given. It is even quite exceptional, from the French standpoint, in having a bathroom with set tub in each suite, and even better, in that it has the water-closet separate from the bathroom. The toilets noted here serve as dressing-rooms. The numerous fireplaces are required by law. They at least give the Frenchman the entirely undemanded excuse for keeping his chamber windows closed tight all night, winter and summer. The stair entrance and vestibule come in the middle of the south side. Just to the right of the stairs are the concierge's rooms. The rest of the space on either side of the entrance is utilized, in the manner customary, even in some of the most expensive Paris apartment houses, by two small shops.

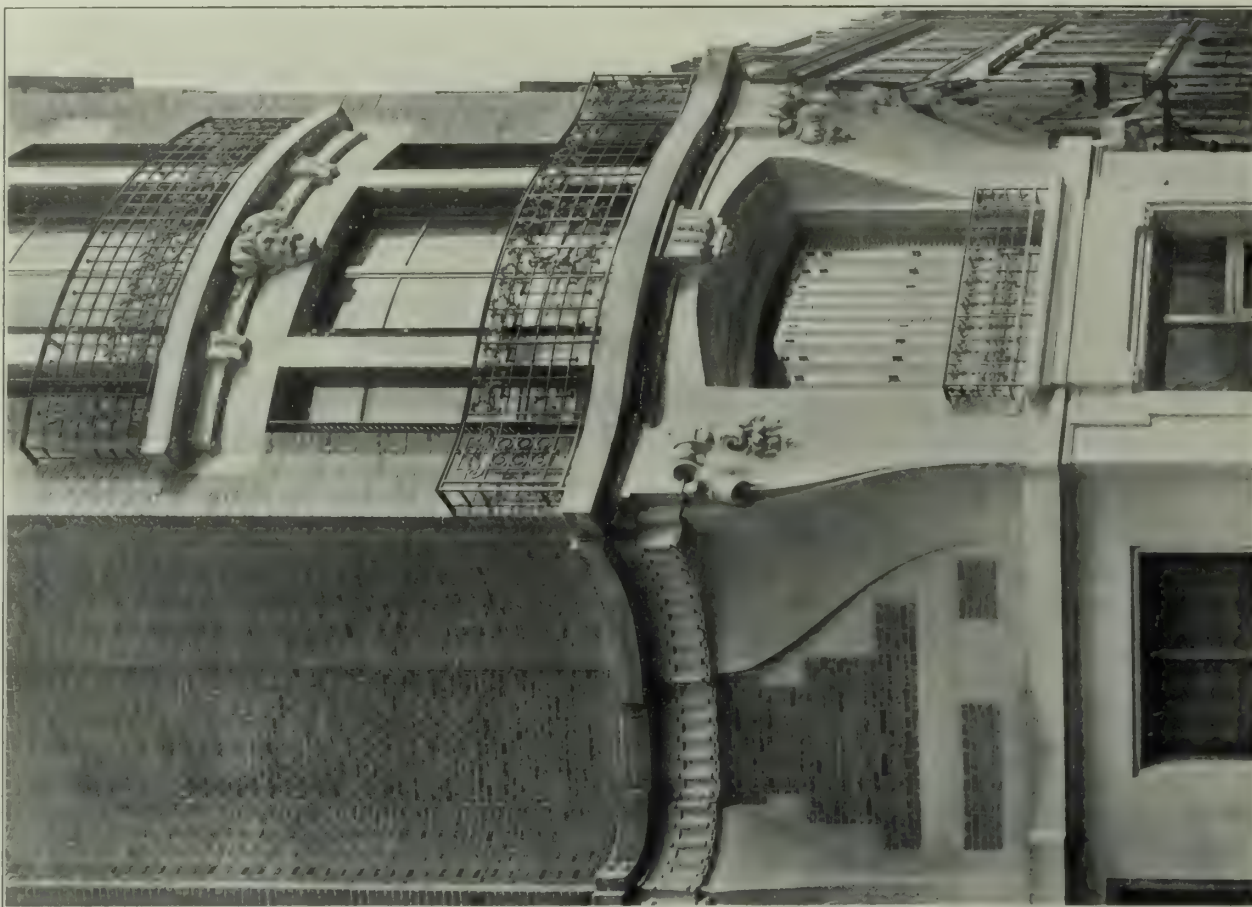
The chief interest for us, however, is in the exterior. An unwritten law demands that the ground floor shall be of stone, a good, hard, white limestone, as are also the sills and belt courses on the floors above. The rest of the stone is a warm buff limestone, lending itself well to carving, and harmonizing well with the red brickwork. This latter is laid Flemish bond in white mortar with well-raked joints. The brickwork on the top floor is laid in red mortar, which tends to unify the story, forming a sort of frieze about the top of the building. The wrought iron grilles and balcony rails are painted a green black. The lintels over the third-story windows are of terra cotta blocks, anchored in between the flanges of the I's.

And when we turn to the general design we remark how frankly M. Deglane takes advantage of his corner lot. The great bow-window rising into a tower not only carries well on the exterior, but with its extra large windows gives most desirable rooms inside. Note the happy way in which he has tied this tower into the quiet street façades by the secondary bow-windows on other side. How naturally and without strain the stone changes to brick. How well chosen and well spotted are the masses of ornament and color throughout, relieved as they are against the plain brick surface, between the bow-windows. The decoration, too, is most in keeping with the rest of the building, bold and strong where needed, or delicate where appropriate. In fact, all the details are characterized by a robust refinement which gives the building a dignity of its own.

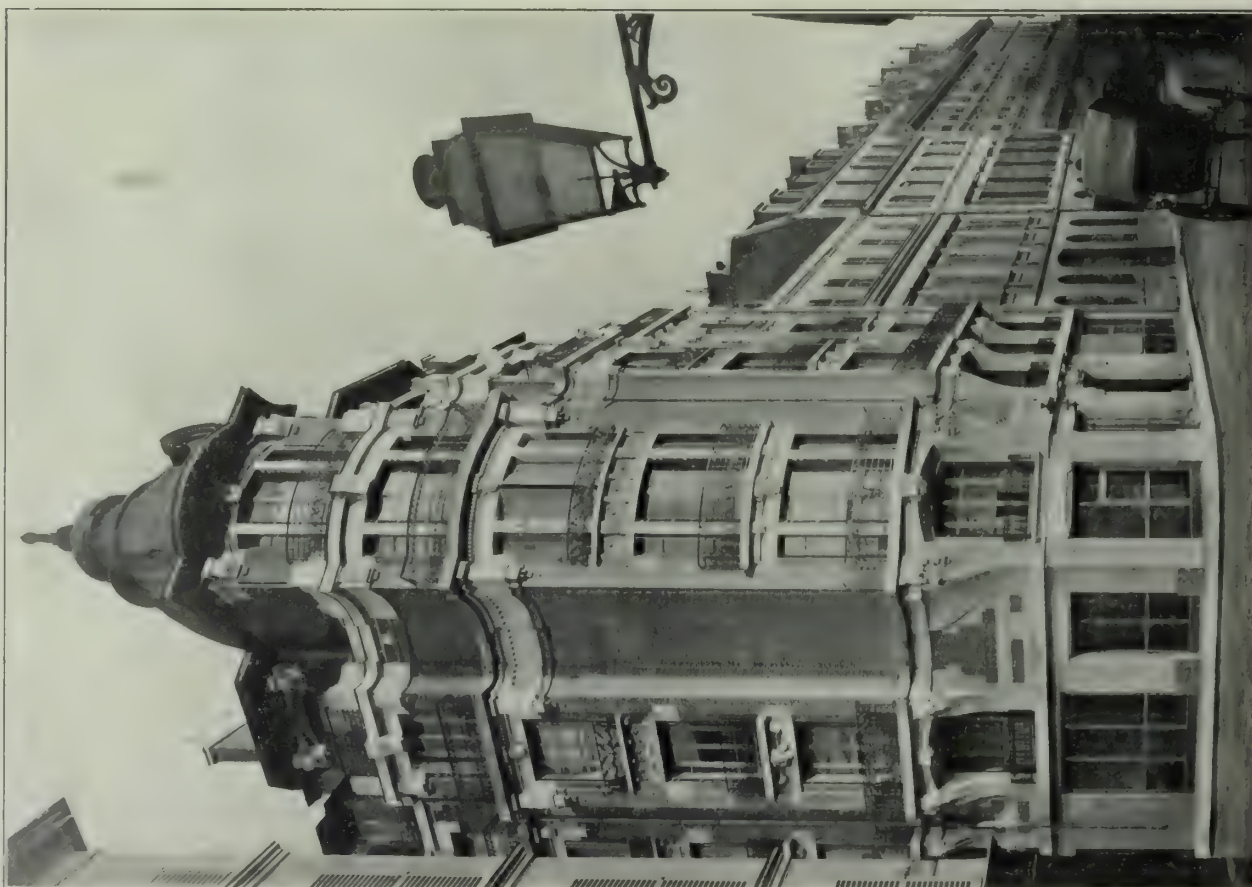


Many of the individual details are most carefully studied in themselves. Take the entrance door, for instance; how easily and playfully the bay-window grows out of it without any feeling of weakness or lack of support. Remark especially, too, the ironwork; how harmonious it is, how light and free, how full of individuality, and how varied in motif down to the main entrance door, which is unique and most striking in the absolute frankness of its plain, solid vertical and horizontal bars, relieved in just the right spots and just the right amount by the decorative flower motif in the panels, and the flowing spiral motif in the borders. This is the work of M. E. Robert, so well known in France for his artistic metal work.

With all its care, it is interesting to note that this house cost no more than its neighbors, that is to say, the building cost about \$70,000, which is at the rate of about \$22 per square foot or 28 cents per cubic foot. The rents average in the neighborhood of 45 cents per square foot, which makes the rent of the average six-room apartment, between \$640 and \$700 per year, taxes on doors and windows extra at 50 cents apiece.



APARTMENT HOUSE, RUE GRENNELLE AND RUE ST. SIMON, PARIS. M. Delange, Architect.





DETAIL OF APARTMENT HOUSE, RUE GRENELLE AND RUE ST. SIMON, PARIS.

A Village Railway Station.

BY WILLIAM LESLIE WELTON.

IN the realm of hypothesis all things are possible. So now that "Brickbuilderville" is tired of using a neighboring way-station, and has decided to build one for itself, it becomes necessary to devise a conveniently planned building conforming to the general architectural lines already established.

This imaginary village is, in reality, a suburb of a large city and some twenty miles distant, a charming community of three thousand people, in fact, a town in southern California, a sort of American Mentone, a smiling land with a luminous atmosphere.

Ever since the day Father Junipero set out from Mexico to colonize California and teach Christianity to the Indians this favored country has prospered and been admired by eastern civilization.

Our supposed town is at the base of the foothills of the Santa Ynez Mountains, where, on every hand, the landscape, from the first blush of morn to the golden pyres of sunset, seems about to smile with girlish joy. Long lines of swelling hills lead into the level and nowhere is one line firmly followed, but the whole wavers and yet is beautiful. It is a country where the broad, long lines of the mountains melt into the sea, and then soar again to the sky; where every piece of dithyrambic landscape forms a varied picture, whereof the composition is due to subtle arrangement of lines always delicate, which somehow seem to have been determined in their beauty by the mountain system, as though they had all taken their time to choose their place and wear down into harmony and one symphonious whole.

The arrangement of our plan presupposes the utmost simplicity and directness in arrangement. Merely a large waiting-room with a retired alcove for both men and women at either side. Space is provided for baggage, plumbing, etc. The ticket office is accused opposite the main entrance, commanding the room within and the track without. Pergolas screen the unsightly tracks from the public approach toward the square, and at the same time add an interesting line to the façade, leading the eye up to the culminating feature of the design—the main entrance. Covered shelters at each side of the roadbed offer protection to commuters in stormy weather.

So many "modern" railway stations are such impossible things, architecturally, that the public cannot be blamed for escaping to the track promenades in preference to remaining inside and be driven to a sepulchral

end. The refined iniquity of the authors of these plans is, to say the least, calculated to drive one to perdition. It may be parenthetically observed that the economy of the poor (?) railroad corporations is doubtless responsible.

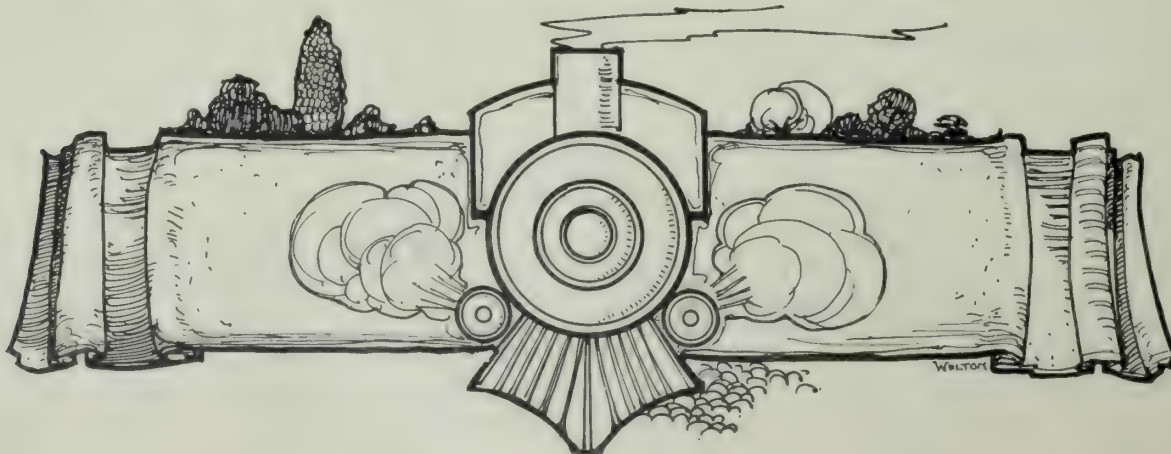
That type of plan which divides what might have been one fine large room of good proportions into two small sheathed boxes, facetiously termed, for the sake of courtesy, "ladies' and gents' waiting-rooms," is particularly to be condemned. These rooms, usually resplendent with "golden oak" woodwork are so ingeniously separated that a man might quite easily lose his wife in the shuffle, a condition generally, though not always, considered a disadvantage. The baggage room in this type of plan is usually relegated to a wart-like excrescence at one end of the building accessible only from the outside and forever in the way of passers-by.

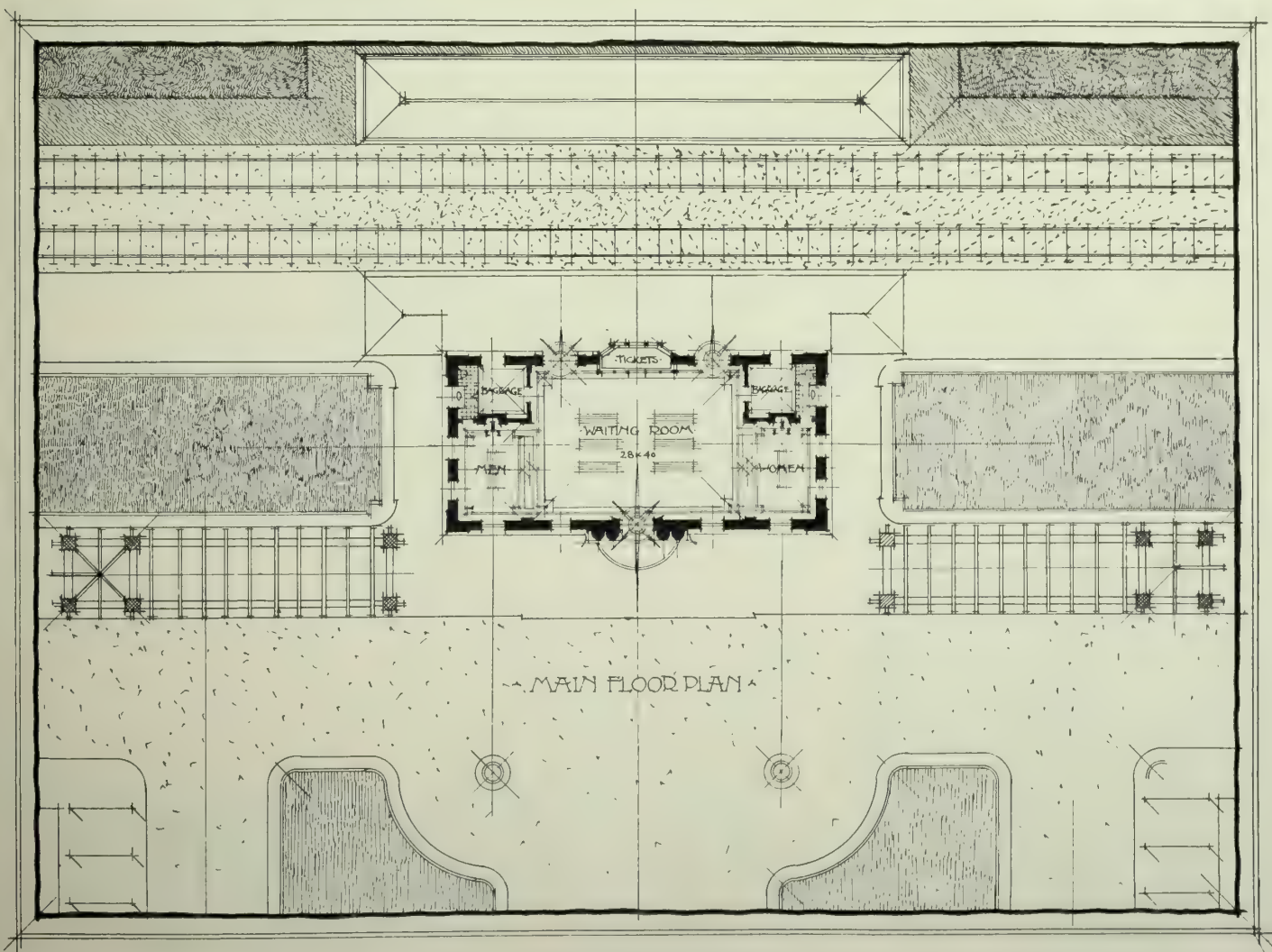
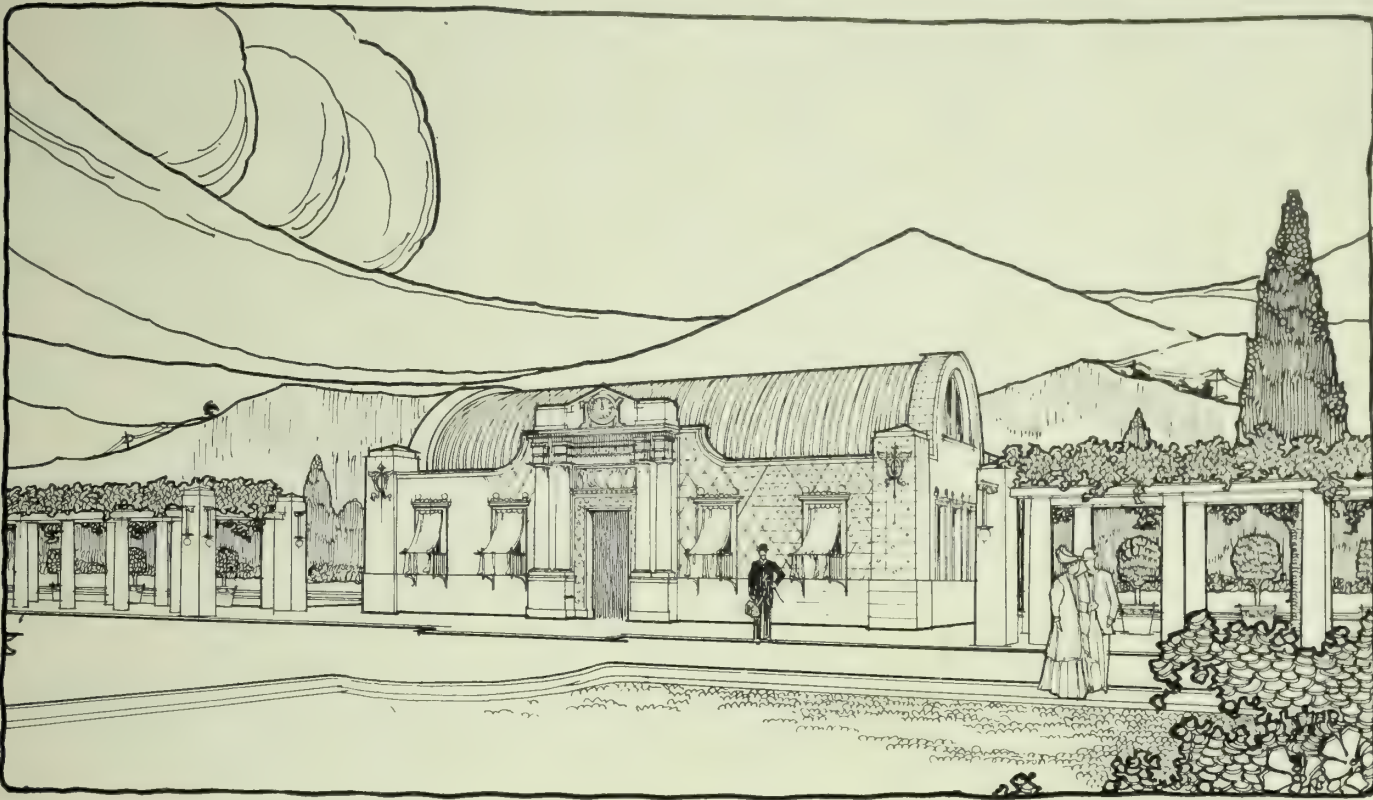
The building here illustrated is intended to be built of brick and terra cotta. The walls outside could be ornamented with a diaper pattern, crossed by horizontal lines forming octagonal spaces, with a terra cotta shell in the center, or otherwise accented by certain color elements in the use of tile or Robbias.

For the roof let us go to the good old examples in the Spanish churches of Mexico, the possibilities of which never seem to have been fully realized. Inside, this same roof becomes a fine barrel vault like the church of the Miracoli at Venice, except in our case tile instead of wood, carrying down to the floor, also of tile, laid herring bone. Certain spots of color at the impost line, above the doors, around the ticket office and clock, as well as the brick-lined fireplaces, might add much interest to the interior.

If I may speak of the exterior without indulging in a discourse on architecture, for manifestly the subject of this article is a village railway station, I would offer, as a personal impression, that it is perhaps better to profit by the use of our legacy of architectural forms, as did Peruzzi in Italy and Gabriel in France, adapting them to modern conditions, than to make a vain show of sciolism by brushing aside the learning of three thousand years and grossly claim to have the only solution for good architecture.

So right here in southern California there exist to-day traces of an unmistakable art left by the hand of Indian neophytes under Spanish guidance, an architectural inheritance of which America may well be proud, at once furnishing us a logical precedent for the character of our building in the preservation of the traditions of the country.





A VILLAGE RAILWAY STATION.
William L. Welton, Architect.

Editorial Comment and Miscellany

THE TRIBUNE BUILDING, CHICAGO, TESTED BY FIRE.

"THE fireproof qualities of the Tribune Building were demonstrated effectively early on the morning of April 29, during a blaze, which originated from some unknown cause in one of the storage rooms on the eighteenth floor.

"The rooms situated on the top floor of the structure, on the Dearborn Street side, were filled with records and other inflammable material. This burned rapidly, but the flames were confined to the three small apartments where they started.

"It was the highest fire from the street level since the days of skyscrapers in Chicago. The flames were extinguished by water, forced through the standpipe of the building to the top floor by fire engines, and the pressure proved ample.

"The fire gave positive evidence of the safety of towering buildings of modern construction. It showed that no matter where a fire occurs in such a building, it is impossible for it to spread to any extent.

"The fire was just under the roof and the heat of the flames is indicated by the fact that the wire reinforced glass in the skylight melted in places, and in others became so soft that it dropped down in fantastic shapes. Also a ten-foot steam pipe which ran through the room in which the fire originated, although covered with asbestos, was totally destroyed.

"In the section swept by the flames was a room used by the electrician and the carpenter of the Tri-

bune Company, and two rooms used for the records of the auditing department of the newspaper, containing data for a number of years back. Many of these records were destroyed.

"These three small rooms had glass windows set in their partitions of fire brick. This glass was destroyed by the heat and permitted the flames to spread. Had there been no glass in the fireproof par-

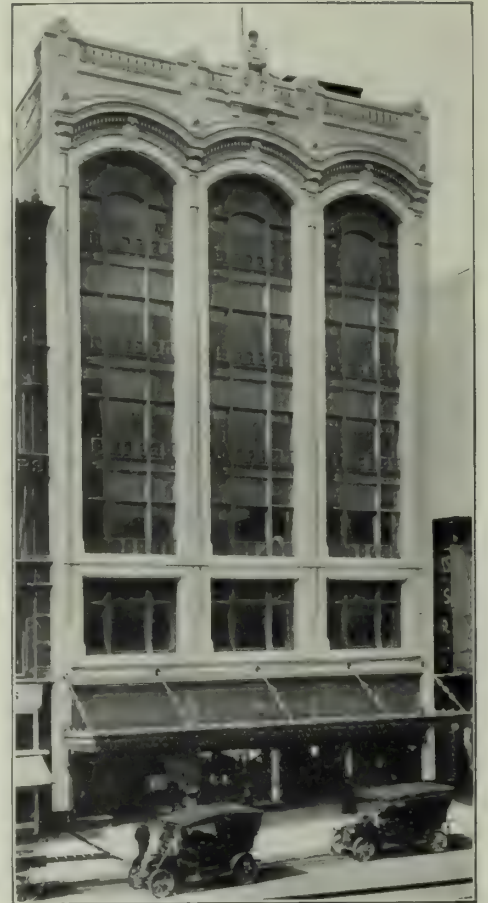
titions the flames would have been confined to one room, according to the firemen.

"The partition walls were left intact and the floors were uninjured. The flames did not spread outside the outer partition wall separating the storage rooms from the corridor. The building was fireproofed with terra cotta hollow tile."

The foregoing description of the fire was published in the *Tribune* — "the party of the first part."



THE TRIBUNE BUILDING, CHICAGO.
From photograph taken after the fire.



GRINNELL BUILDING, DETROIT.
Albert Kahn, Architect.
Entire front of full white glaze terra cotta,
made by Atlantic Terra Cotta Co.

FIRE occurred in fifty-eight public or private school buildings in the United States and Canada during the first three months of this year. The property loss was large. More important than that, the lives of thousands of school children were endangered. A tabulation by the Insurance Press fails to show the cause of the fire in each instance, but in the majority of cases, where the cause is stated, a defect in the flue, the furnace, the wiring, or in some other detail of construction, is named as responsible. A list of six hundred and forty-five cities and towns in the United States is given in which communities, it is said, investigation has shown a lack of necessary precaution for the safety of school children. If there is one type of buildings which needs to be fire proofed it is the schoolhouse. The people may be depended upon to contribute the additional cost if the way is pointed out to them by those whose business it is to point the way in matters of this sort.



DETAIL ON SCHOOL OF APPLIED DESIGN.
Pell & Corbett, Architects.
Conkling-Armstrong Terra Cotta Co., Makers.

ALTHOUGH his skill finds greatest scope in permanent forms, the architect may devote himself with scarcely less success to temporary structures such as civic decorations for street and other pageants. A matter of national interest is the embellishing of Pennsylvania Avenue in Washington for the next inaugural parade. A competition for this has been instituted by the local chapter of the American Institute of Architects, the Washington Architectural Club and The National Society of Fine Arts. Three prizes are to be given and the designs placed at the disposal of the inaugural committee on decoration. The route of the parade from the Capitol to Seventeenth Street is to be treated, and the designs are to include stands and other structural features. It is stipulated that the flag shall only be used where it can float freely as from a staff. In this connection it is interesting to refer to the decorations of Paris by eminent architects of France on the occasion of the marriage of Napoleon to Marie Louise.

THE Government appropriation of \$1,200,000 for a deep waterway three hundred feet wide, from Newark-Bay up the Passaic River to the northern limits of Newark, is a forecast of important building schemes in this vicinity. Dredgings from the river are to be deposited over the adjoining meadows, and will aid in furnishing factory sites. A large sum has been voted by the people of Newark for the construction of public docks, and private enterprises of proportional scale are likely to follow.

MRS. RUSSELL SAGE is interesting herself in restoring that masterpiece of Colonial architecture, the New York City Hall, to conform with the original plans for the building as drawn by John McComb, assisted by Lamaire. Already the Governor's Room has been restored, under the direction of McKim, Mead & White. Mrs. Sage donated



MAP ROOM, WAR COLLEGE, WASHINGTON, D. C.
McKim, Mead & White, Architects.
Guastavino Tile Construction.

architects, Boston, has been appointed building commissioner for the city of Boston.

Elmo C. Lowe and Horace C. Ingram have formed a copartnership for the practice of architecture, with offices in the Corn Exchange Bank Building, Chicago.

R. Burnside Potter, having retired from the firm of Robertson & Potter, architects, 160 Fifth Avenue, New York, the business will be continued under the firm name of R. H. Robertson & Son.



RAILWAY STATION, NEWBURG, OHIO.
Roofed with Imperial Spanish Red Tile.
Made by Ludowici-Celadon Co.

Colt; secretary, Will Walter Jackson; recorder, F. Livingston Pell; treasurer, H. G. Emery; governors, W. A. Delano, J. T. Tubby, Jr., D. Everett Waid, Harold C. Werner.

The report is current that the Pennsylvania, the St. Paul & Chicago and Northwestern Railroads will build in Chicago, west of the Chicago River, a union passenger station, which will be the largest in the world, at a cost of about one hundred millions of dollars. The other roads entering the city will also use this station.

The Metropolitan Life Insurance Company has decided to have its tower on Madison Square, New York, built to a



DETAIL BY J. WARNER ALLEN, ARCHITECT.
South Amboy Terra Cotta Co., Makers.



HOUSE AT CINCINNATI, OHIO.

Built of Shawnee Brick, made by Ohio Mining and Manufacturing Co.

height of fifty stories, instead of forty-eight, as first planned. When completed, the summit of the tower will

notable on account of their locations and the fact that they are likely to become dominating features of architectural schemes later to be developed. The former hotel, designed by Marshall Mackenzie & Son is in the concave curve of the new, wide street of Aldwych; the latter, by Norman Shaw, stands as a key for the reconstruction of the Regent Street Quadrant.

The discussion in the House, anent the housing of American ambassadors abroad, provided some very entertaining reading in the otherwise prosaic *Congressional Record*. And now that the bill has passed for the purchase of a mansion in Paris, it is to be hoped that embassies elsewhere will be straightway acquired. But why purchase them? American architects are the leaders of the world in planning domestic establishments and they should be given a chance to house Uncle Sam's large and scattered family.

The Second Prize, \$2,000, awarded in the Competition

FIRST DISTRICT POLICE COURT AND PATROL WAGON HOUSE,
ST. LOUIS, MO.James A. Smith, Architect.
Terra Cotta by St. Louis Terra Cotta Co.

be six hundred and ninety-three feet above the sidewalk, or eighty-one feet higher than the Singer Building.

The restoration of normal financial conditions is bringing increasing capital into the mortgage market, where it may be had at fairly reasonable rates. In New York, five per cent is now accepted, and extensive building improvements are again being projected, though on rather a more rational scale than in the recent past.

The Press Club is to add another to the long list of clubhouses in New York City. Property recently purchased at the corner of Spruce and William streets will be improved by the erection of a twelve-story building, of which the lower four floors are to be rented as stores or offices, and the remainder devoted to a completely appointed home of the club.

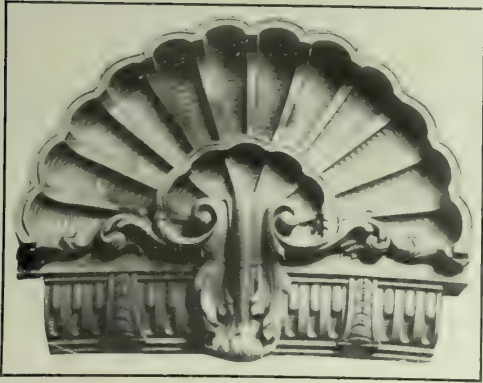
Two fine new hotels nearing completion in London are the "Waldorf" and the "Piccadilly." Both are

for the Capitol Building of San Juan, Porto Rico, was won by Ritchie & Abbott of Boston, and not Ritchie Abbott



HOUSE AT ITHACA, N. Y.

William H. Miller, Architect. Built of "Ironclay" Brick.



DETAIL BY HALL & BAKER, ARCHITECTS.
American Terra Cotta Co., Makers.

of New York, as stated in our April issue. Mr. Ritchie is connected with the office of Parker, Thomas & Rice, Boston, and Mr. Abbott is with Shepley, Rutton & Coolidge.

The architectural terra cotta used in the three new buildings for the Syracuse University, illustrated in this issue, was furnished by the Atlantic Terra Cotta Company.

The new Lotos Club Building, New York, Donn Barber, architect, promises to be unusually interesting as an example of texture and pattern work in brick. Fiske & Co. of New York will supply the face and ornamental brick for the building.

The architectural terra cotta used in the Vincent Memorial Hospital, Boston; Tarratine Club, Bangor; Public Baths, East Twenty-third Street, New York, illustrated in THE BRICKBUILDER for April, was executed by the Atlantic Terra Cotta Company.

The Indianapolis Terra Cotta Company will furnish the architectural terra cotta for the following new buildings: Elks Club, Terre Haute, Ind.; Martin Miller, architect; High School, Sharpesville, Ind., J. T. John-



MAIN ENTRANCE, ADMINISTRATION BUILDING,
SEARS, ROEBUCK & CO. GROUP, CHICAGO.
Nimmons & Fellows, Architects.
Gray Terra Cotta executed by Northwestern Terra Cotta Co.



DETAIL OF STORAGE BUILDING FOR METROPOLITAN LIFE
INSURANCE CO., BRONXVILLE, N. Y.
N. Le Brun & Sons, Architects.
Terra Cotta by New York Architectural Terra Cotta Co.

son & Co., architects; public school, Indianapolis, H. C. Brubaker & Co., architects; Y. W. C. A. Building, Indianapolis, D. A. Bohlen & Son, architects; Y. M. C. A. Building, Indianapolis, Foltz & Parker, architects.

The increased use in this country of faience has put a demand upon the manufacturers for quality, which is being met by them in a most commendable spirit. Work which will meet the demands of the architect in the matter of colors, glazes and nicety of finish, and work which will withstand the ravages of time is recognized by the manufacturers as being paramount in the development of this business. The Doultons of England have long been famous for the excellence of their manufacture in this material, and it is announced by the Hartford Faience Company of Hartford, Conn., that they have secured the services of Francis G. Plant, who for a long time has had charge of the architectural faience work for Doulton & Co. Mr. Plant, who has had a large experience in executing work under the direction of architects, will have entire charge of the architectural faience work for the Hartford Company. This company will begin at once the manufacture of a new line of tiles for the decoration of buildings, and will also put on the market a new series of designs for mantel work, all of which will be executed under Mr. Plant's direction.



ORNAMENT OVER WINDOW.
Widmann & Walsh, Architects.
Made by Winkle Terra Cotta Co.



DETAIL BY ISRAELS & HARDER, ARCHITECTS.
New Jersey Terra Cotta Co., Makers.

COMPETITION FOR THE MUNICIPAL BUILDING GROUP, SPRINGFIELD, MASS.

THE Municipal Building Commission of Springfield, Mass., announce a competition for the proposed new Municipal Building Group, to comprise municipal offices, a large auditorium and a clock tower. The group is projected for a fine site facing the newly en-



PARISH HOUSE AND SUNDAY SCHOOL BUILDING, BUFFALO.
Thomas W. Harris, Architect.

Built of Red Shale Brick, made by Jewettville Pressed and Paving Brick Co.

larged public square which extends from the business center to the Connecticut River.

The competition will be held under the direction of Professor Warren P. Laird, of the University of Pennsylvania, and will consist of two parts; a preliminary, open to all qualified architects and a final confined to the authors of the two best designs in the preliminary, five especially invited architects, and all qualified Springfield architects. In the final competition will be awarded nine fees of four hundred dollars each; two to the Springfield architects submitting the best designs, and one to each of the other competitors, no competitive fee being paid to the architect awarded the prize.

The following architects have accepted the Commission's invitation to submit designs in the final part, viz.: Messrs. Cass Gilbert, Hale & Rogers, Lord & Hewlett, Peabody & Stearns and Pell & Corbett.

The conditions of the preliminary competition will be announced probably on Thursday, June 4, and drawings are to be delivered by noon of Saturday, June 27.

The preliminary competition will call for very few and simple drawings at thirty-second scale, its purpose

being to "try-out" the open field with the least possible outlay of time and expense to the competitor.

The Commission desires the participation in the preliminary part of all architects of good professional standing and of experience in the actual execution of large work. Applications are to be made on blank forms, which may be secured by addressing the adviser at the University of Pennsylvania, Philadelphia.

THE Board of School Inspectors of St. Paul has just purchased the sites for the location of four new high schools to be erected practically simultaneously, to take the place of the buildings now in use. The first building to be started is to be known as the New Mechanic Arts High School, centrally located. The Board has established an open competition for the purpose of selecting an architect. The programmes of this competition are now ready and will be submitted to any reputable architect applying for the same. The first prize will be the commission to design and supervise the erection of the building. Second and third prizes of four hundred and three hundred dollars respectively will be awarded to the next two architects whose designs shall be rated as second and third in order of merit.

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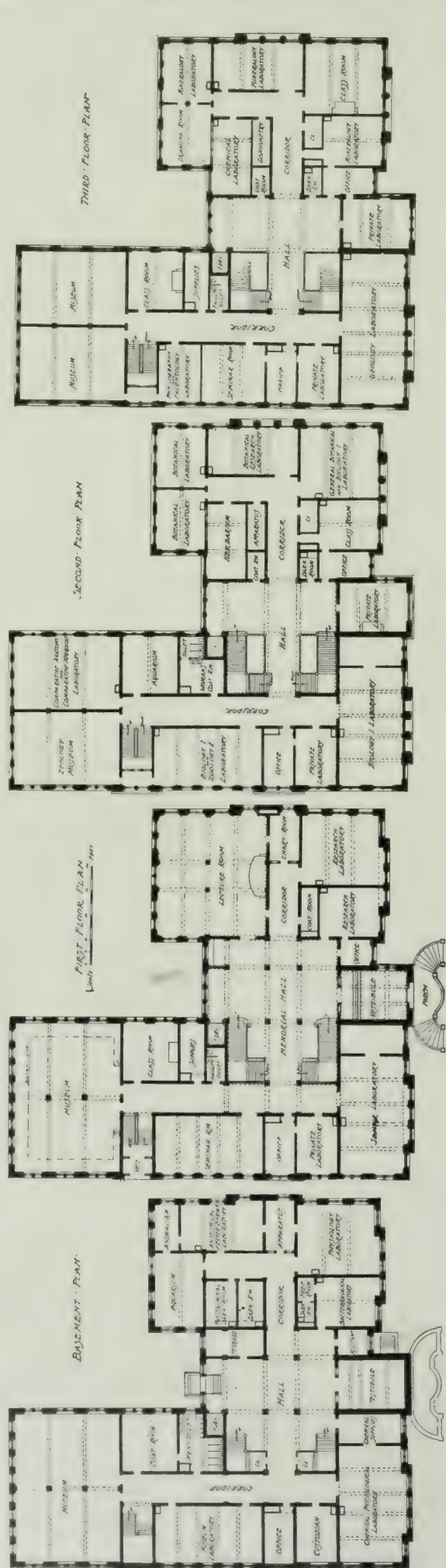


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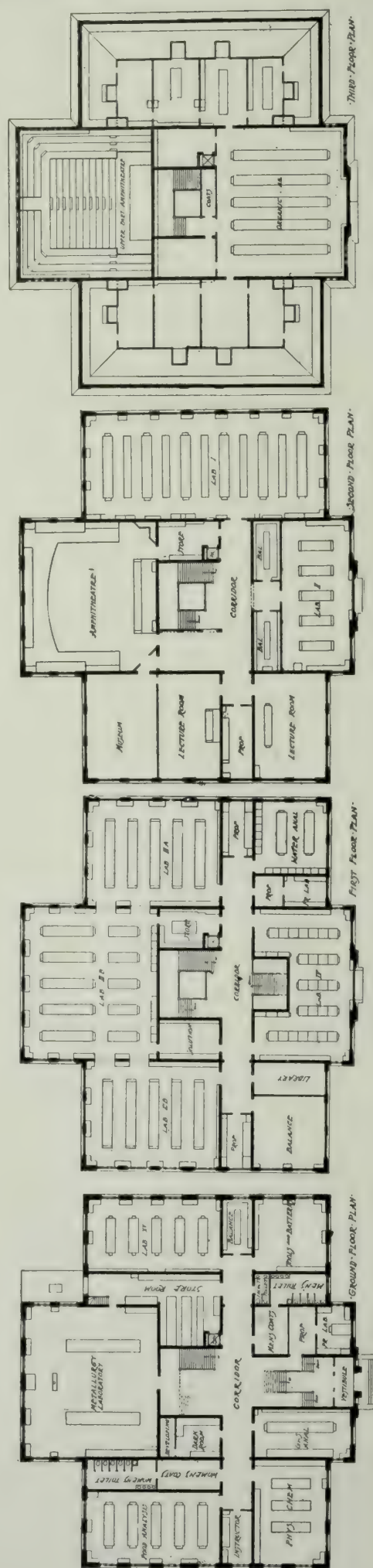
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PLANS OF JOHN LYMAN HALL OF NATURAL HISTORY, SYRACUSE UNIVERSITY, SYRACUSE, N. Y.

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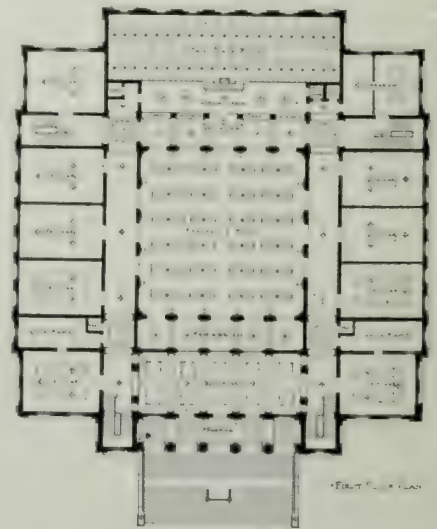
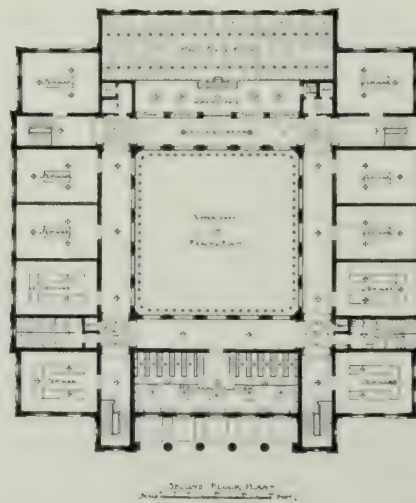
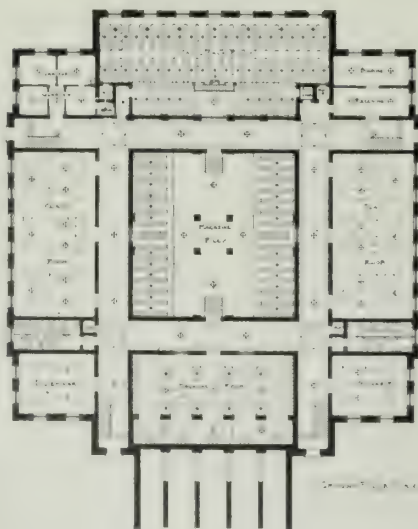


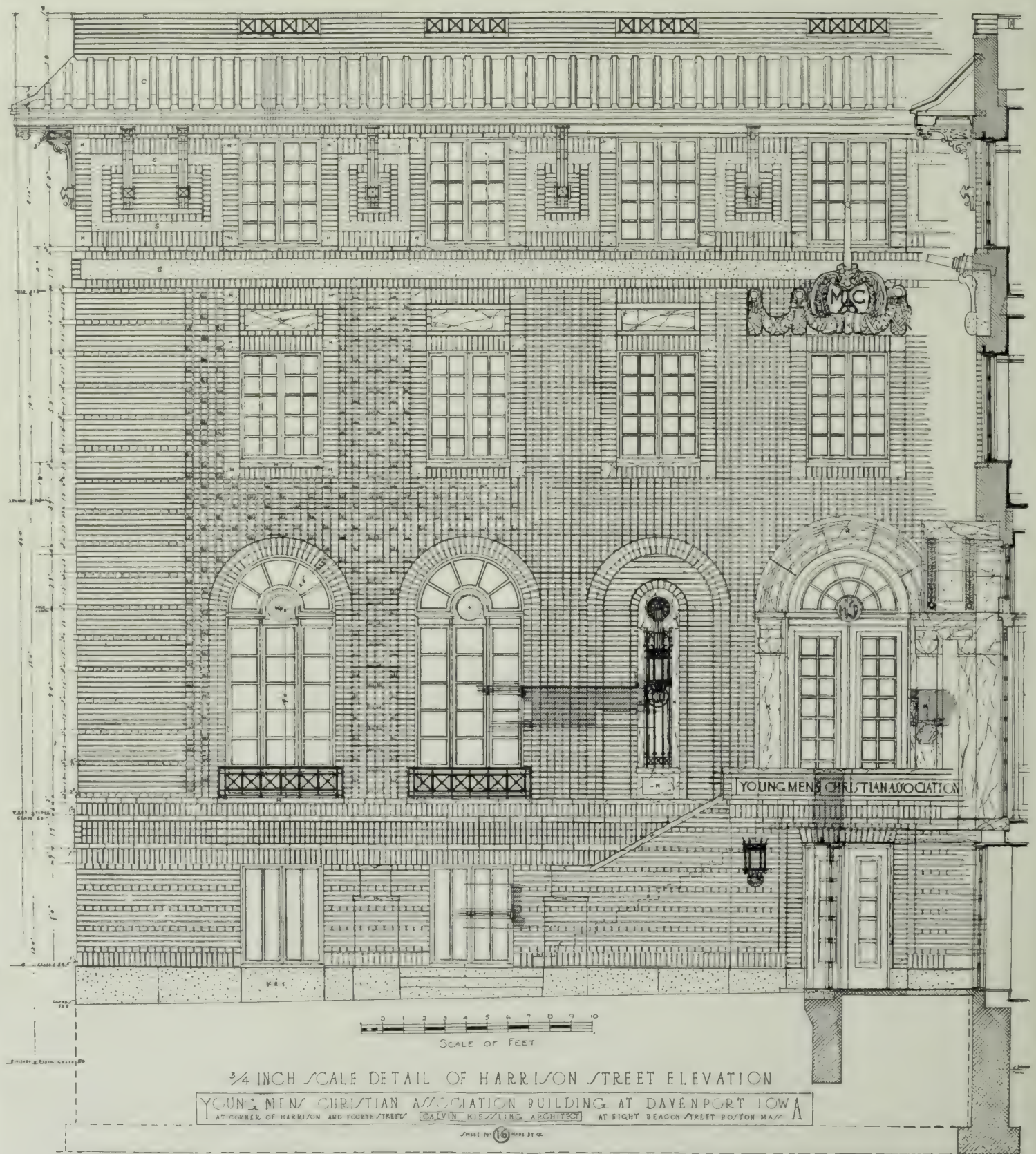
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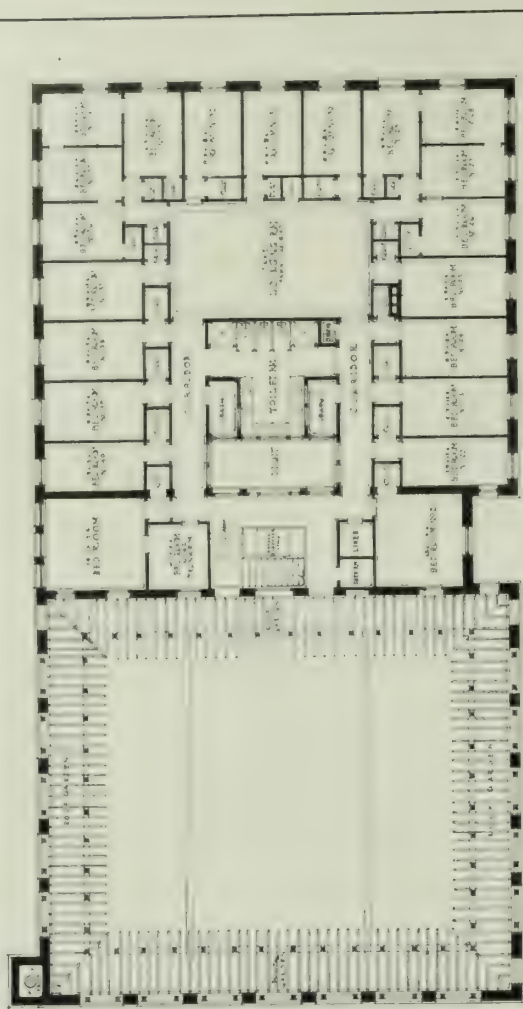


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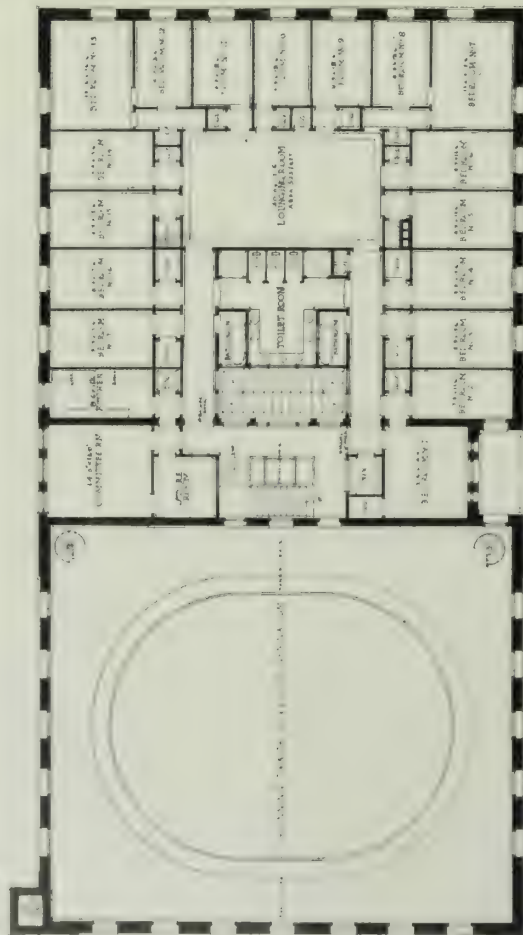




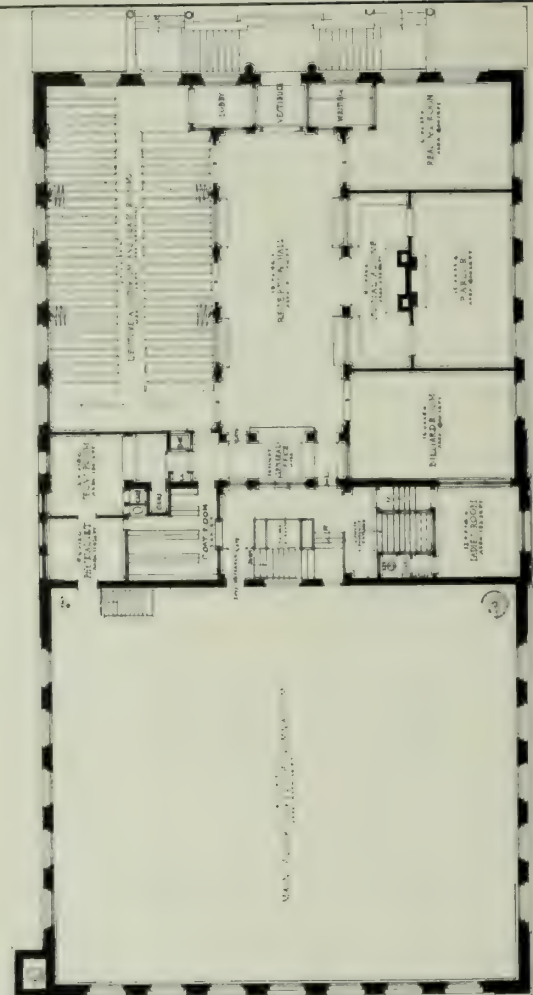
DETAIL OF FRONT ELEVATION,
YOUNG MEN'S CHRISTIAN ASSOCIATION BUILDING, DAVENPORT, IOWA.
CALVIN KIESSLING, ARCHITECT.



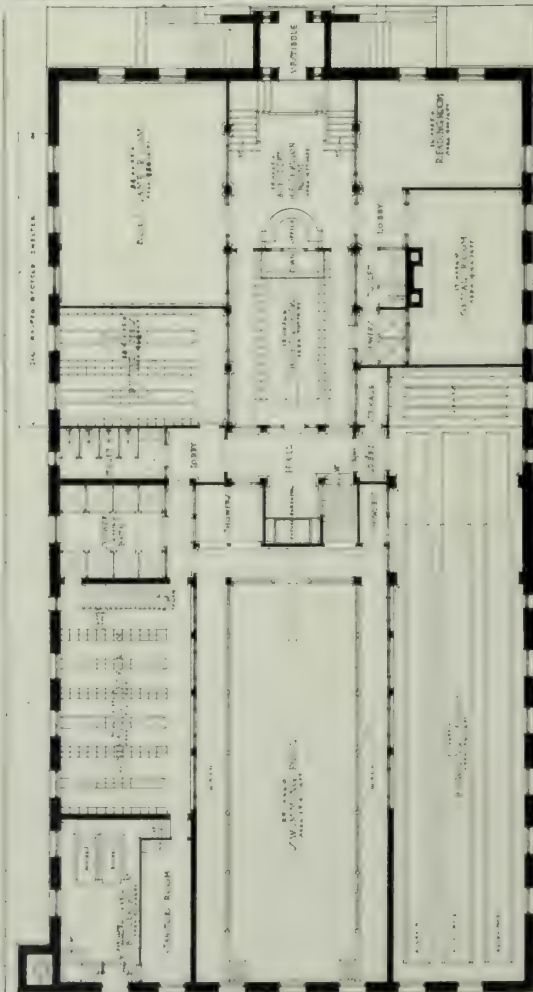
THIRD FLOOR PLAN.



SECOND FLOOR PLAN.



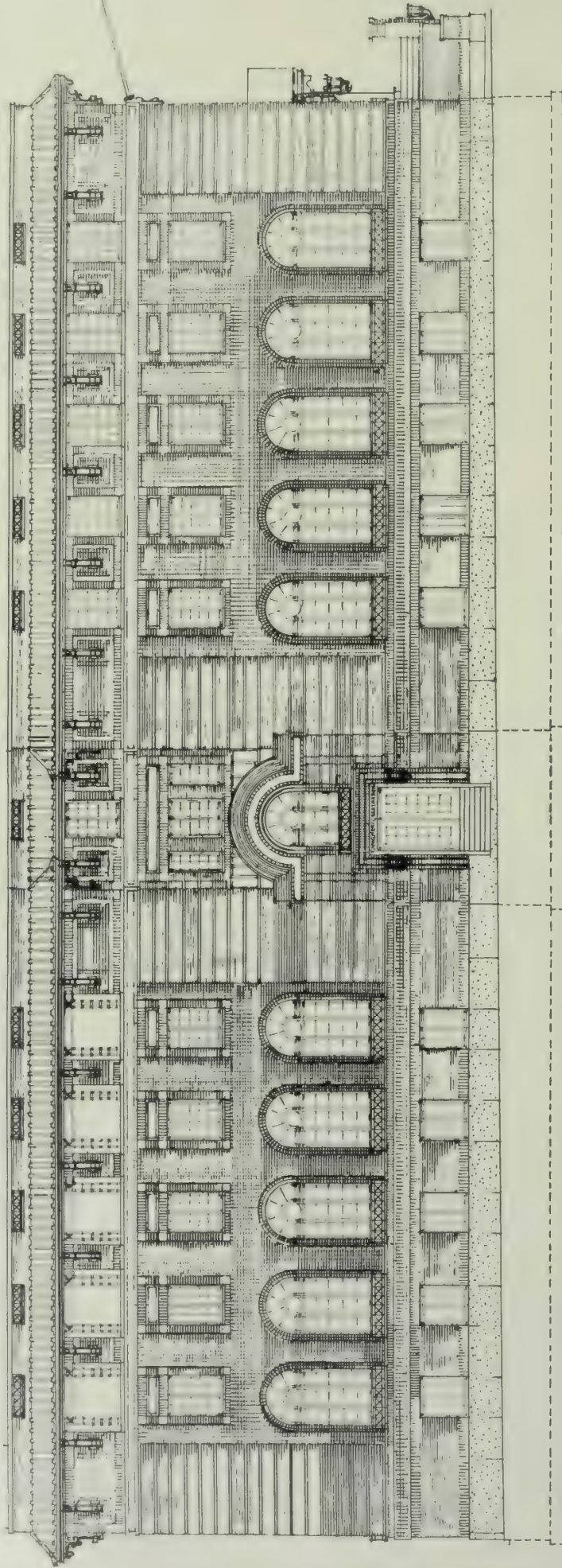
FIRST FLOOR PLAN.



BASEMENT PLAN.

FLOOR PLANS, YOUNG MEN'S CHRISTIAN ASSOCIATION BUILDING, DAVENPORT, IOWA
CALVIN KIESSLING, ARCHITECT.





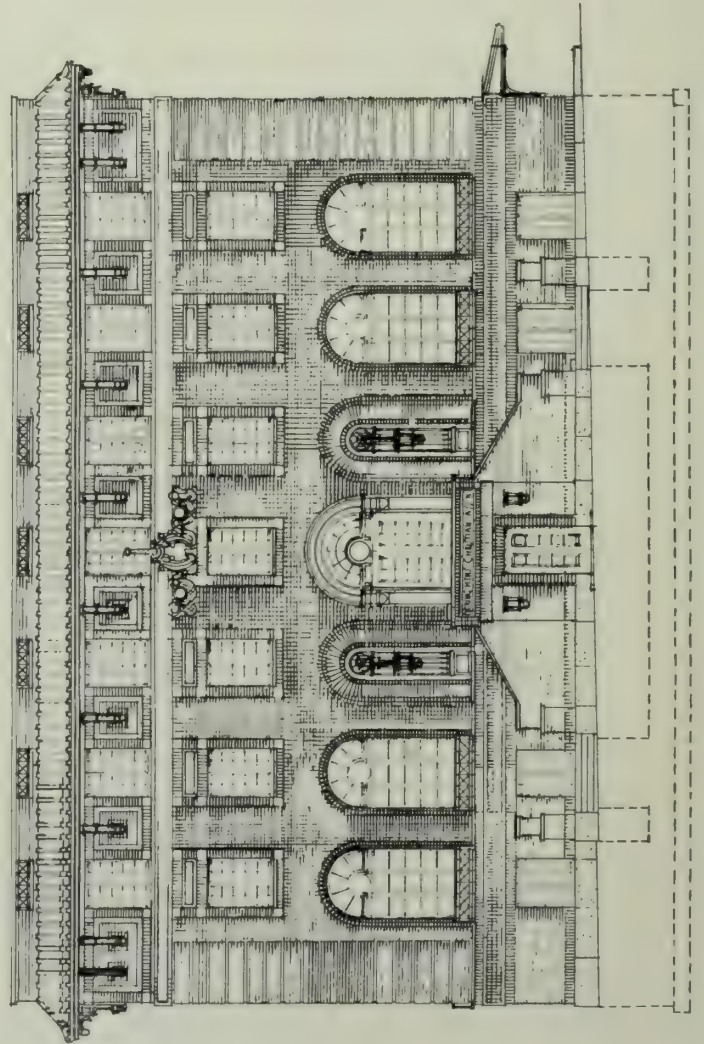
FRONT AND SIDE ELEVATIONS,
YOUNG MEN'S CHRISTIAN ASSOCIATION

BUILDING,

DAVENPORT, IOWA.

(DESIGN SELECTED IN COMPETITION)

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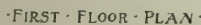
GATE LODGE.



GATE LODGE AND STABLE. HOUSE AT LAKE FOREST, ILLINOIS.
SPENCER & POWERS, ARCHITECTS.



HOUSE AT LAKE FOREST, ILLINOIS.
SPENCER & POWERS, ARCHITECTS.

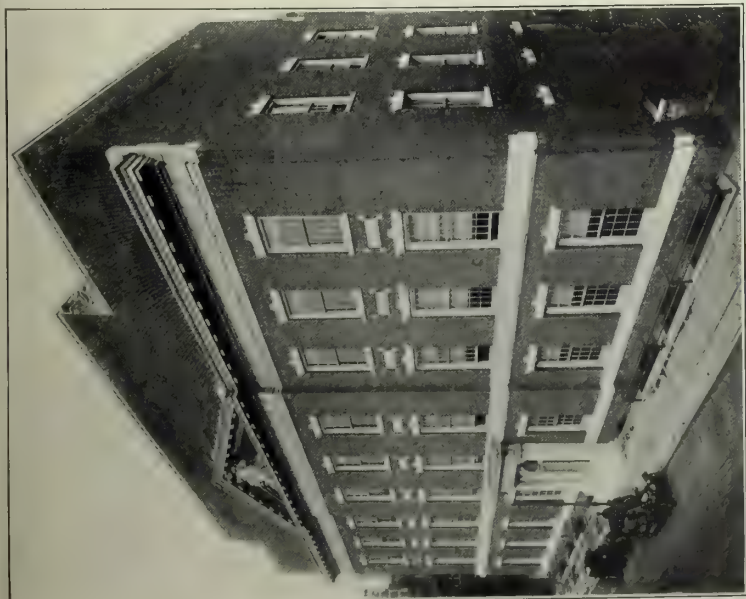


HOUSE AT

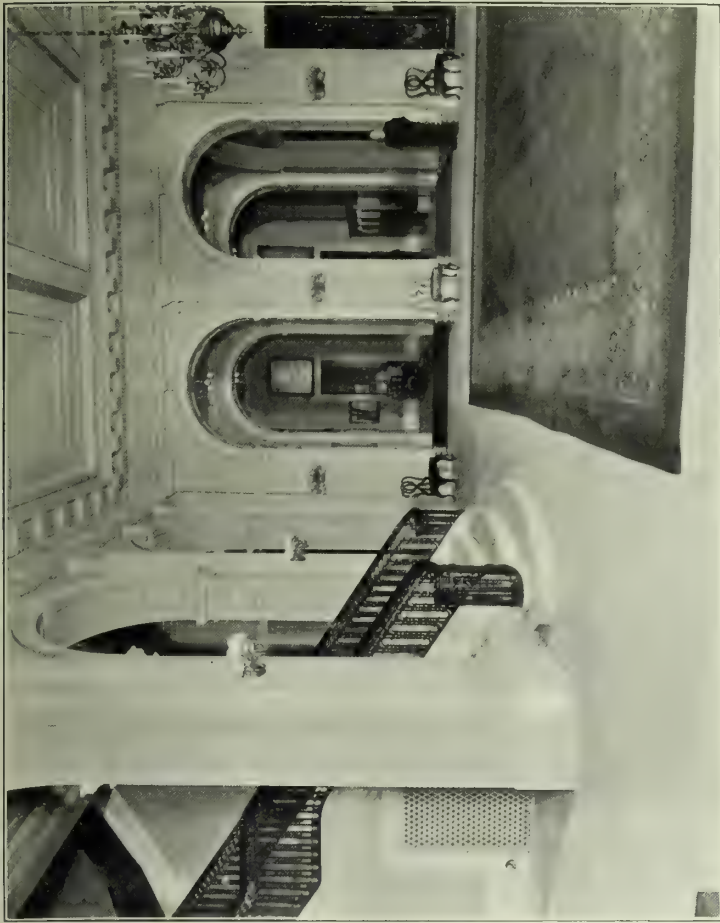
LAKE FOREST, ILLINOIS.

SPENCER & POWERS.

ARCHITECTS



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SOUTH SIXTEENTH
STREET,
PHILADELPHIA.
HORACE TRUMBAUER,
ARCHITECT.



MAIN HALL.



RACQUET CLUB.



SWIMMING POOL, THIRD FLOOR.

FOURTH FLOOR.



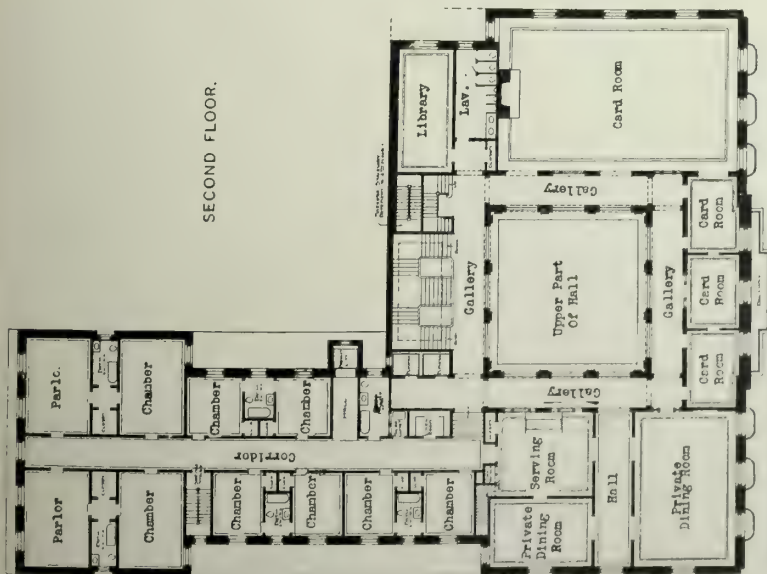
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FIRST FLOOR.



SECOND FLOOR.



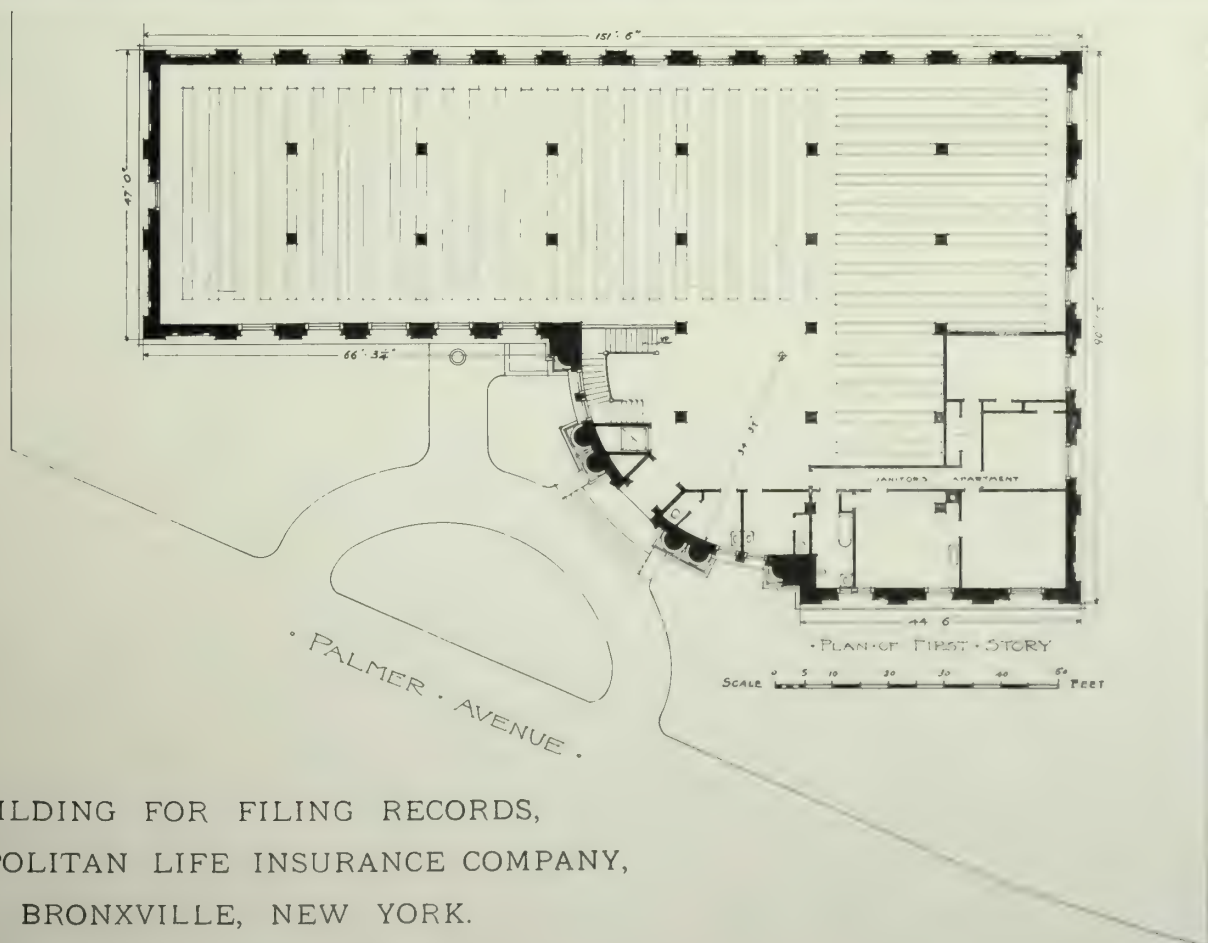
BASEMENT.



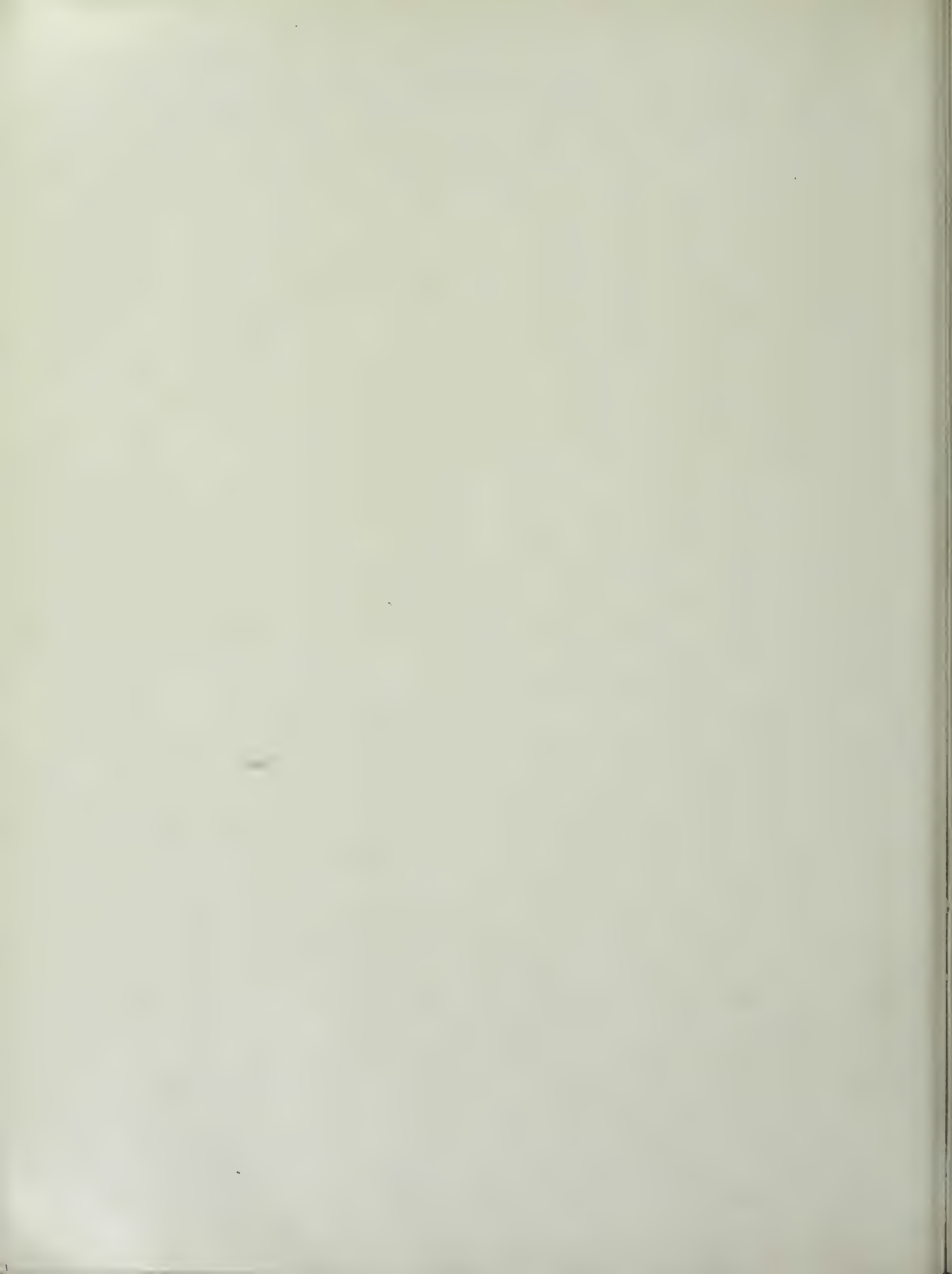
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SOUTH SIXTEENTH
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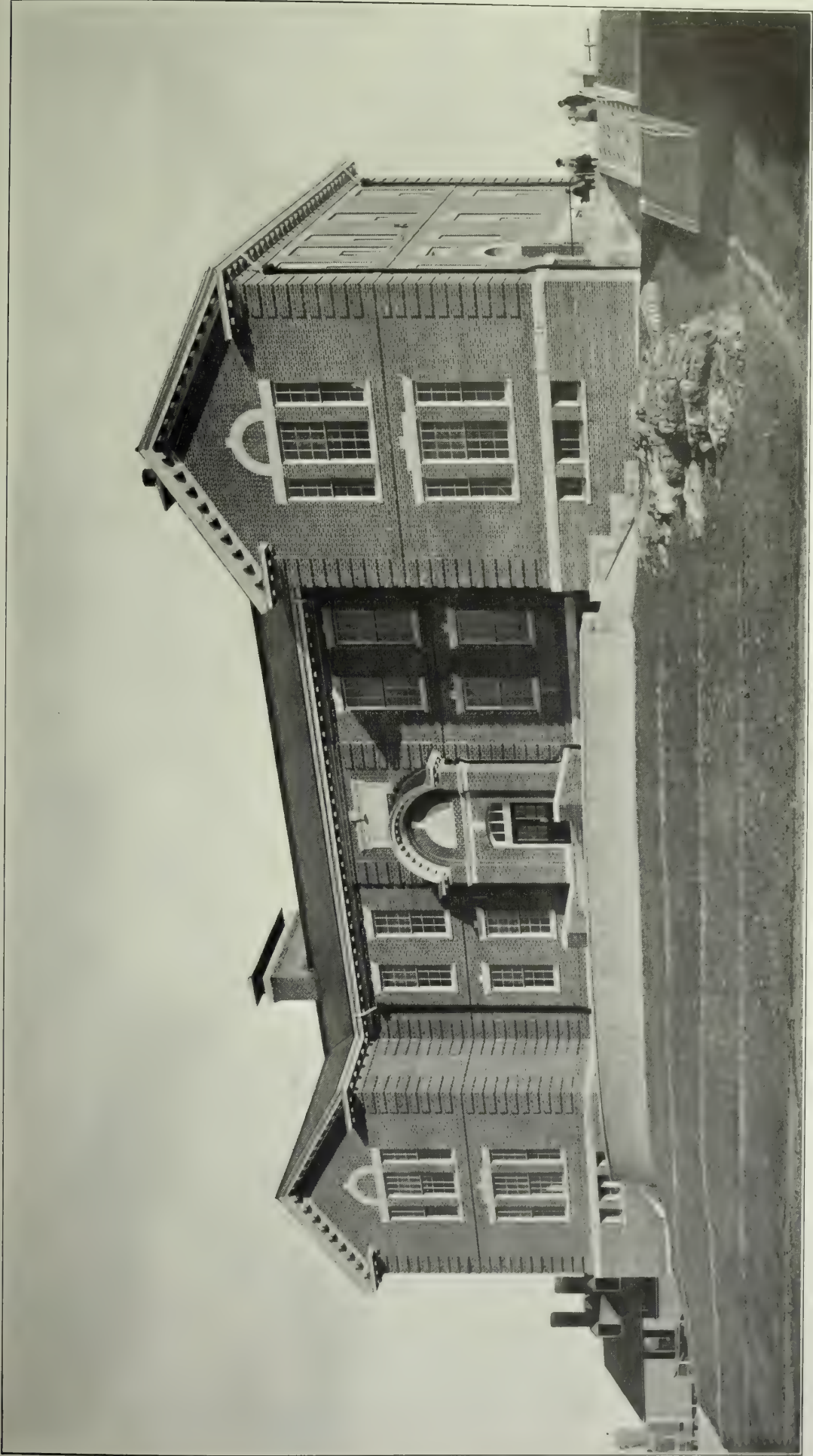
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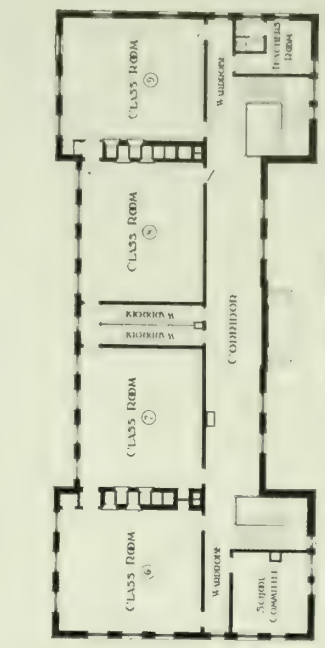
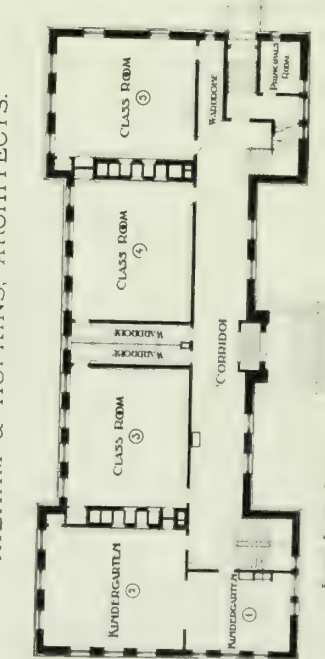
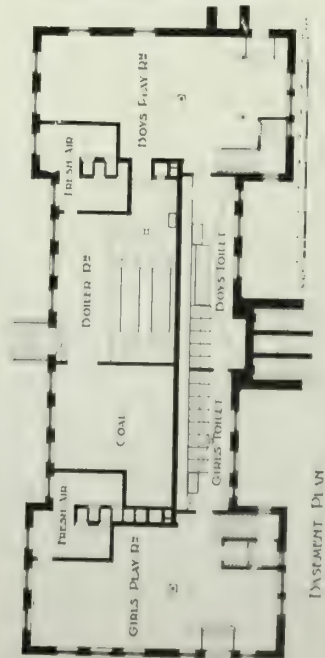


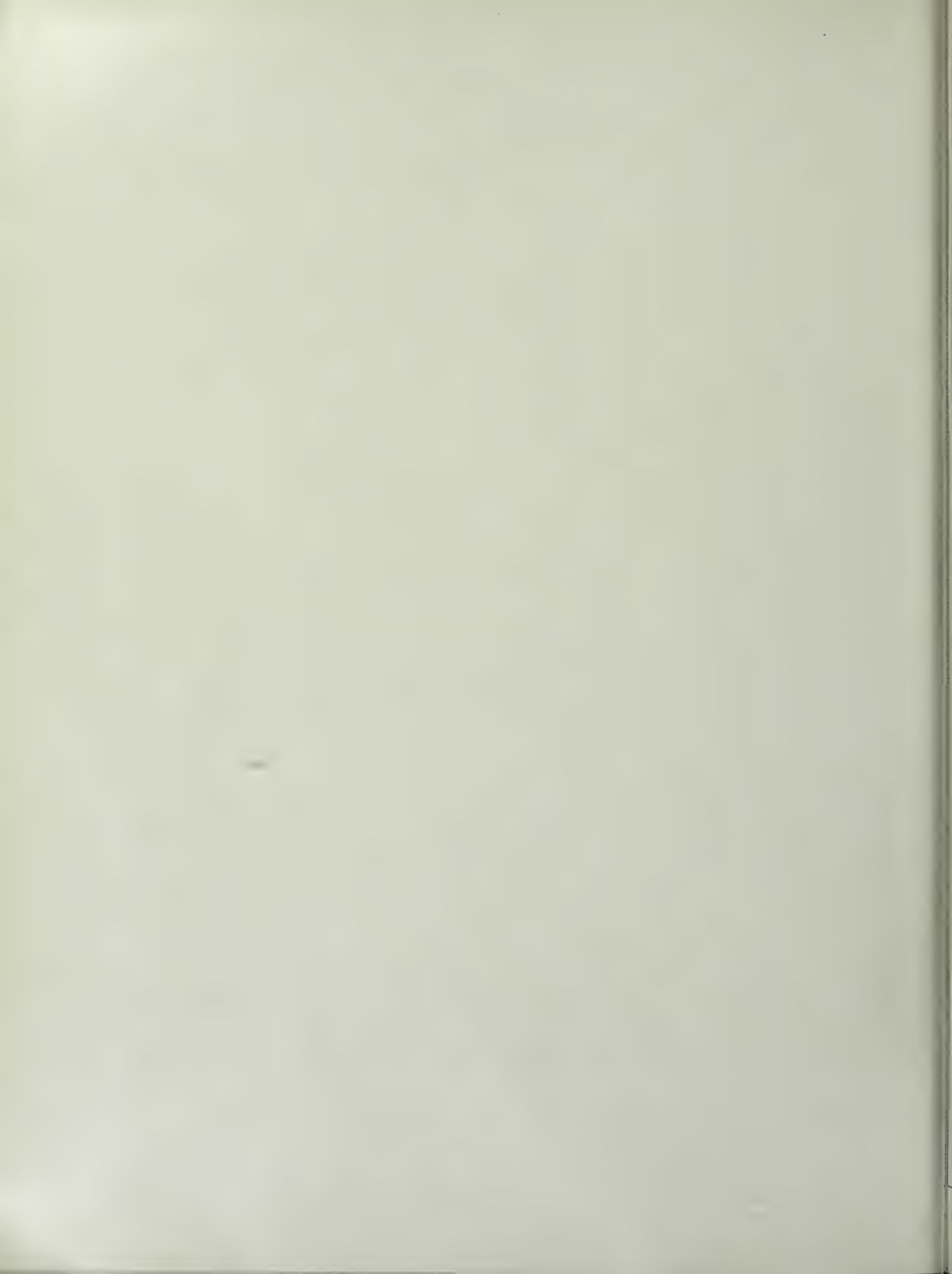
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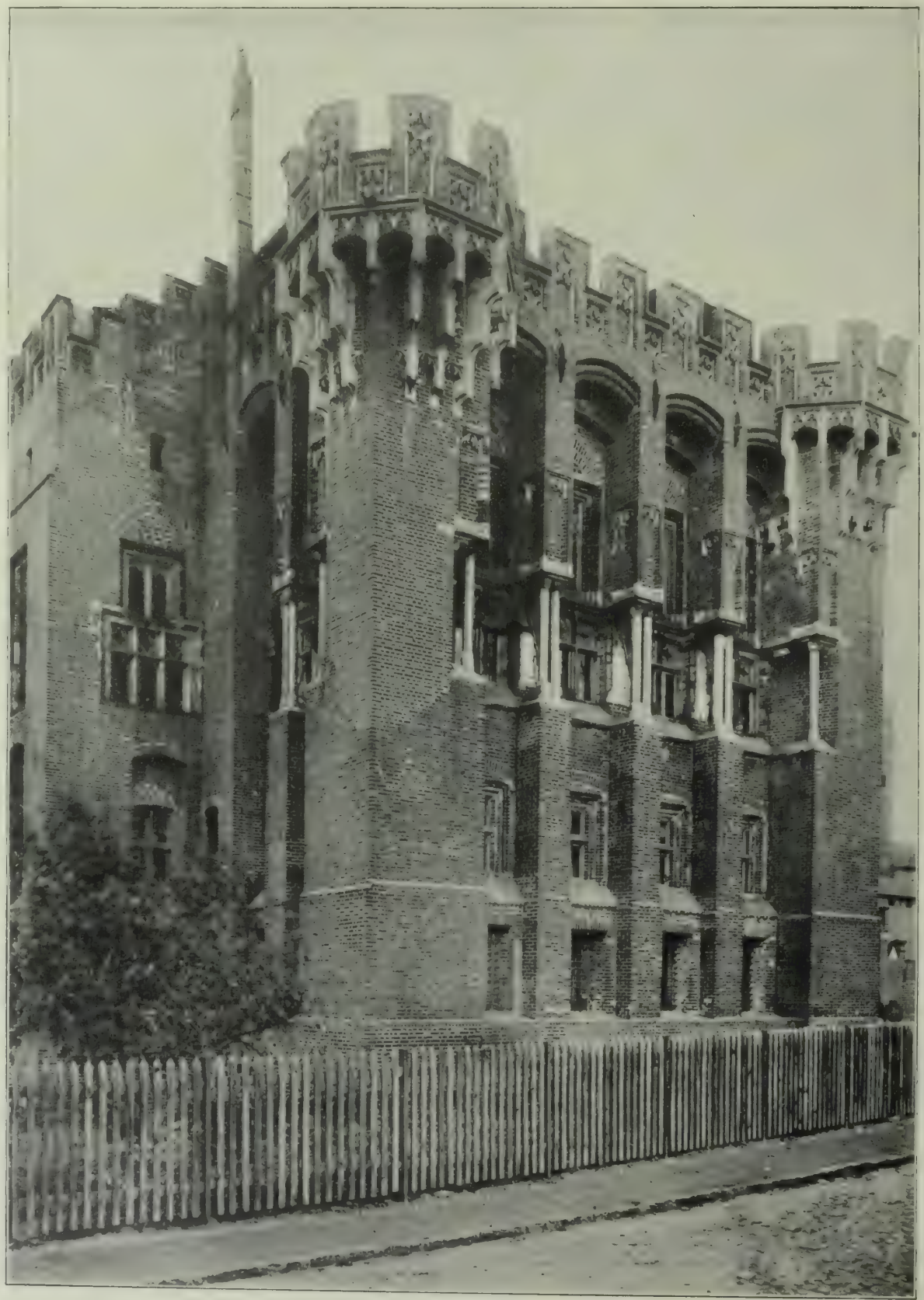
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THE CASTLE, MARIENBURG, PRUSSIA.

THE BRICKVILDER

VOL. 17 NO. 6

DEVOTED TO THE INTERESTS OF ARCHITECTURE IN MATERIALS OF CLAY

JUNE 1908

The American Theater — VII.

SAFETY FROM FIRE.

BY CLARENCE H. BLACKALL.

THE greatest source of danger in every theater fire has been not in the fire nor in the smoke but in the people themselves, who lose their heads and trample one another to death. Accordingly, the first consideration of safety is that the exits shall be of such arrangement and size that a panic-stricken crowd cannot go wrong. It is, of course, impossible to make any building panic proof, but there are certainly many things to avoid in the construction of an auditorium, and there are some constructions which should enter into the planning of every public hall.

Most of our cities now require open courts or streets on each side of the auditorium of a theater. The required width of these courts varies from six feet in Boston to ten feet in Rochester, and it is everywhere required that they shall connect without interruption to a public thoroughfare. This is a regulation which sometimes seems like a hardship to the owner who is required to give up a large portion of the available width of his lot, but it is a very desirable provision and one that ought not to be slighted. We have not yet in this country come to the point of obliging every theater to be open to the streets on all sides, as is the case in most European cities, though that is by far the best arrangement.

As has previously been stated in this series, Boston is one of the few cities in which the Building Law is exigent as regards lobbies. The theory is that in case of fire the audience should have a lobby of sufficient size to accommodate the entire audience standing. The real efficiency of this arrangement has never been put to a test. It is extremely doubtful if theaters that have large lobbies would be any safer than those which have no lobbies at all but have properly arranged exit corridors. On the other hand, there is no controverting the advantage of lobbies from the point of view of convenience. They are never built in this country too large for that purpose, and they are often reduced in size to the vanishing point; but as a matter of mere safety, in case of a fire or panic, it is not conceivable that the audience will rush into the lobbies and stay there while the theater burns, and the real value of a lobby as part of a safety exit is measured by the capacity of the exits leading from this lobby to the street. The mere interposition of what might be termed an expansion

joint into the line of exits would not make the danger materially less in case of panic. This principle should be borne in mind in planning exit corridors, especially those from the galleries. It is a good scheme to start with these of the maximum size which shall be determined upon and to continue this size practically unbroken to the street. If expanded into lobbies, or if they have any marked projections, these passages might easily become danger spots for a panic-stricken crowd.

Furthermore, when flights of stairs form a part of a line of exits, these stairs should be kept as nearly uniform in rise and tread as possible. Any variation in one or the other is very apt to cause a crowd to stumble. Also, in such lines of exits all interior corners should be rounded out so that by no possibility could individuals be caught in an eddy and crushed. Some of these precautions may seem unnecessary, but sad experiences have shown how unreasonable a crowd will be.

Dependence should not be put upon so-called emergency exits. A crowd will go in the usual lines and cannot be depended upon to avail themselves of any exits not ordinarily in use. For this reason so-called exterior fire escapes are of little practical value in case of panic. While, of course, they are a great deal better than nothing, and may sometimes save lives in case of fire after the first rush, the right way is to make the regular exits ample, and have them used every time the theater is emptied, so that the public may become accustomed to such ways of egress. Exterior fire escapes suggest safety; as a matter of fact, they are seldom constructed so as to be of use. In some cities it is required that such exterior exits shall be covered to protect them from snow and ice, and the rise and tread of the stairs is usually prescribed by law; but they are, after all, unusual exits, and are generally steep and dangerous in appearance. The interior exit is really safer for fire and panic.

Two lines of exit should not converge so as to create a congestion, and a flight of stairs should never end in a corridor serving as an exit from another section of the house unless the stairs end at a distance equal their own width from the cross corridor. Also, where space will permit, two separate stairways, each five or six feet wide, will serve to better purpose than a single stairway of the combined width of the two, and where it is absolutely

necessary to have a single wide stairway any width over six feet should be provided with a strong center rail.

Inside of the auditorium itself care should be taken that the exits from the balcony and gallery shall never be downward but up toward the rear, and there should never be steps down where two lines of exits converge. This was a condition which existed at the Iroquois Theater at the time of the fire, and which led to a great loss of lives by reason of the people stumbling and being buried in heaps about a doorway. For similar reason vomitories are not desirable. There are many cases where they have been employed, but in the ideal theater all the exits would be out from the rear, and it is not possible to so construct vomitories that there could not be very serious congestion at the exits in case of a panic.

The various theater fires which have so shocked the communities within the last few years have, notwithstanding their disastrous results, demonstrated, without question, that from a structural standpoint a building can be made fireproof. The difficulty always is with the fittings and furnishings. They are of necessity more or less inflammable, and no satisfactory device has yet been worked out to fireproof fabrics without a sacrifice of their artistic value. But all the fabrics and wood finish in a modern fireproof theater would never bring death to an audience so long as the individuals kept their head. It is only when the exits are blocked by unreasonable crowds that those behind are scorched by the flames from the draperies and woodwork.

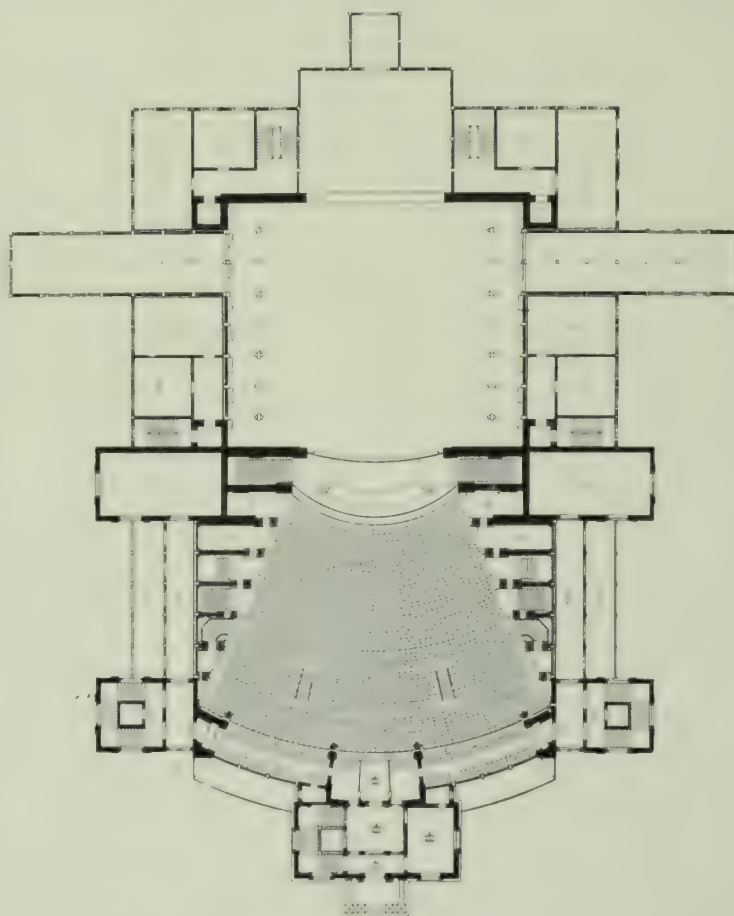
A theater fire usually starts on the stage, and every city has regulations requiring some form of fire curtain intended to confine the flames and at least a part of the smoke to the stage. The much vaunted asbestos curtain is sometimes a snare and delusion by not working properly, or by working at the wrong time, but if in proper order and running easily in metal grooves, it will serve as a fairly efficient barrier against flames. Unfortunately, when an asbestos curtain shuts down on a stage fire the conditions behind the curtain are made worse and the actors are lucky if they get out alive. As the stage hands are usually the first to discover the fire, and as exit is far easier for them than for the audience,

it is by no means sure that the fire curtain will close except by the parting of the fusible links which hold it open, for it is asking too much of ordinary human nature to expect that stage hands would always sacrifice themselves to give a few moments respite to a panicky audience. As a matter of fact, no asbestos curtain has ever been of much practical value except in the case of a slight conflagration on the stage.

The asbestos curtain is very little used in Europe, its place being taken by a screen consisting of a steel framework covered with corrugated iron, the whole working in tight grooves and serving as a very efficient fire stop.

Its value was demonstrated within a short time at the Drury Lane Theater in London, where a fire on the stage did a great deal of damage to that part of the house without spreading beyond the fire curtain. This form of construction is not required by law in this country and is seldom used, but it is far preferable to asbestos.

Some cities require that a fireproof curtain shall be so marked plainly in letters visible to the entire audience and that it shall be closed before and after each performance. If the fireproof curtain were to be suddenly lowered during an act, the audience would be very apt to jump at the conclusion that there was danger from fire and a panic would ensue. There is no good reason why a fire curtain should not be treated like an ordinary act drop, so far as appearance is concerned, and there does not seem to be anything gained by labeling it as a fireproof curtain. Of course, this fireproof curtain, whether



FLOOR PLAN, WAGNER OPERA HOUSE, BEYREUTH.

For Distinguished Strangers. — A. Boxes. B Lounge. C. Balcony.
D. Anteroom. E. Staircase.

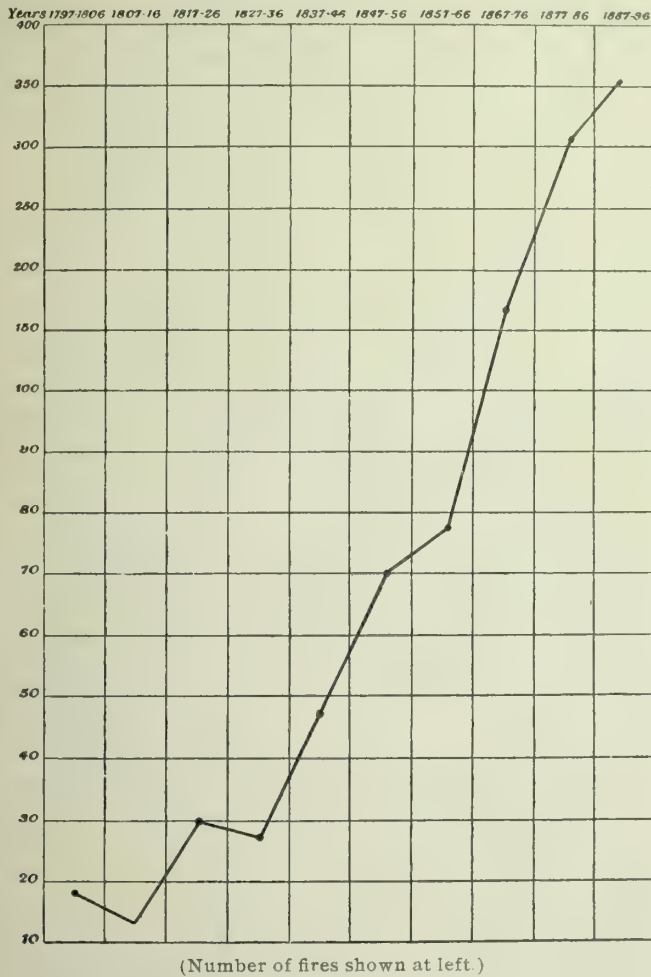
K. Dressing-Room. L. Scene Store. M. Chorus. a. Entrance to Stalls.
b. Entrance to Orchestra. c. Service Stairs. d. Entrance to Distinguished Strangers' Boxes.

of asbestos or steel, should in every case be automatic in its action, so a sudden rise in temperature over the stage will melt a fusible link and allow the curtain to descend.

Very few American theaters are so arranged as to safely handle a panic-stricken crowd, and it is quite likely that commercial requirements will always be a bar to even a measure of success in this direction, but to illustrate what might be, there is a very excellent illustration afforded by the theater which Richard Wagner built at Bayreuth, where he had plenty of room and where the mere construction was so cheap that he was free to give all the desired space to exits and accessories. The theater is without balconies or galleries, a single broad and deep

orchestra rising with a regular grade from the stage front, and without aisles or columns or any obstruction. The platforms of the seats are wider than in our average theaters, and each row of seats constitutes an aisle continuous from one side of the building to the other, so that the time required to empty the theater is simply the time required for the people to step out of one row of seats. All these aisles lead to broad, easy foyers outside of the main auditorium, and it is hard to see how even the most panicky crowd could do itself very much damage in this theater as far as relates to the matter of exits. Of course there are many theaters abroad like the Paris Opera House in which the proportion between the

with automatic fire alarms, and with a standpipe on each side with not less than fifty feet of hose ready for instant use at each level. The use of the English alarm valve on the sprinkler service is not desirable. The writer's experience has been that it will frequently be set ringing by a slight water hammer and in several cases the starting of the gong through no cause except sudden opening or closing of a cock somewhere in the building has started an insipient panic which was not easy to quell. There is one device, however, that should be insisted upon in every theater, and that is some form of automatic skylight above the rigging loft and controlled from the prompter's desk, so that in case of any sudden rise of



(Number of fires shown at left)

DIAGRAM SHOWING NUMBER OF THEATER FIRES ACCORDING TO DECADES FROM 1797-1897.

exit corridors and the seating capacity of the several divisions of the house is so large that a crowd is dissipated almost instantly it emerges from the few rows of seats served by any one aisle; but we are never able to build our theaters on that liberal scale.

It is usual to surround the curtain opening with some form of water curtain. This consists either of a perforated pipe carried up the sides and across the head, through which a strong stream of water can be thrown if desired; or, perhaps better yet, a fantail jet of large volume is placed midway of each jamb and overhead, so that when turned on these will throw a heavy spray across the entire opening. Then, of course, every theater stage ought to be thoroughly equipped with automatic sprinklers,



(Number of lives lost shown at left)

DIAGRAM SHOWING NUMBER OF LIVES LOST IN THEATER FIRES FROM 1876-1897.

temperature the skylight will either open entirely by the top revolving or sliding out of place, or else dampers on the sides of a monitor will drop out so as to allow the smoke and flames to escape at once. In the case of the Iroquois Theater it has been stated that the automatic ventilators over the stage were nailed up tight, the flames consequently being driven out from the stage into the audience, causing considerable loss of life. Had these stage ventilators worked properly the course of the flames would have been upward, and, while the panic would probably have been quite as intense, the loss of life from fire would have been greatly reduced. The area of the openings in these skylights should be not less than one-tenth of the floor area of the stage.

The lines which support the scenery over the stage are almost universally in this country of manila rope. As the ordinary stage fitting would include twenty or thirty miles of this rope and as all of the ropes are attached to wooden battens supporting the scenery, it will be appreciated at once that if wire rope could be substituted for the manila and all the battens made throughout of metal, the combustible contents of the stage would be limited to the cloth of the scenery itself. Furthermore, there is no good reason why the scenes themselves should not be constructed of iron. This use of wire rope and metallic frames for scenery is, however, something which has never yet been well worked out and would be practical only when the scenery is operated by power rather than by hand.

Theater fires present some interesting statistics. One would naturally suppose that in the days before so-called fireproof construction, when gas was used exclusively about the stage, the fire hazard would be very great, but the risks seem to have increased faster than the number of theaters. At any rate, the advent of fireproof construction has not materially lessened the loss of life. The two tables which are shown herewith are taken from Sachs' Book on "Modern Opera Houses and Theatres," and show that there has been a constant advance during the last century in the number of fires, while the loss of life, which was at a minimum about

1880, has been steadily increasing. This simply shows that, notwithstanding all our attempts to have our theaters fireproof, we cannot make the audience feel sufficient confidence to avoid a panic. In the celebrated Ring Theater fire at Vienna the loss of life occurred before the performance had begun and when the theater was only partially filled. In the Iroquois fire most of the deaths could have been avoided if the exits had been in proper order and the audience had not become panic-stricken. If every theater were planned simply with a view of securing the very best results for safety to property and to persons the fire hazard would be greatly reduced. The architect is seldom allowed to provide the maximum accommodations in exits, and when he arranges his approaches in what he believes to be the best manner, if he puts in abundant lobbies, ample stairways and easy approaches, the chances are he would be considered extravagant and would not have the chance to design another theater, and as our theaters are controlled by private interests and must earn interest on the investment, we continue to put up each year buildings which we know are not quite right. They come within the law, but none of our theater laws in this country are at all drastic as regards provision for safety. The requirements are whittled down to the utmost minimum to start with, and seldom is a building erected in entire conformity even with these minimum requirements.



THE ATHENEUM, NEW ORLEANS, LA. Stone Brothers, Architects.

The Public Bath — V.

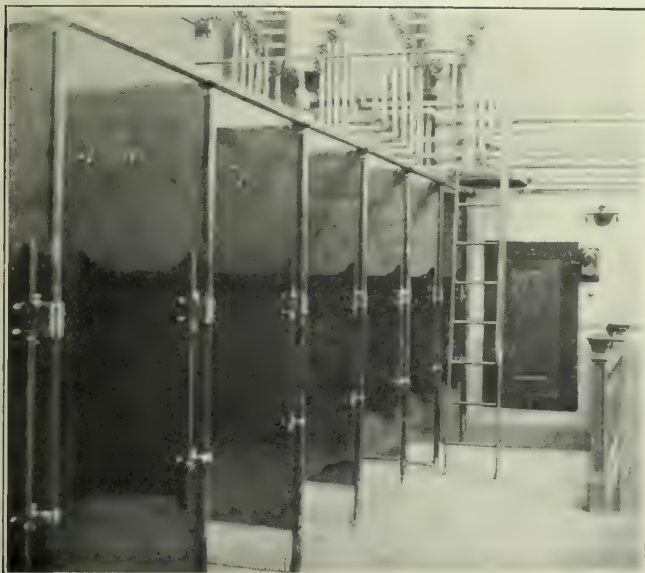
PLAN AND CONSTRUCTION.

BY HAROLD WERNER AND AUGUST P. WINDOLPH.

THE ideal public bath building for American cities is essentially a modern problem and must be solved to satisfy exacting and varying conditions. Ancient types are not at all applicable, and while European models offer valuable suggestions for the various forms of bathing and for arrangement of the plant, they are not adaptable as a whole for our purposes.

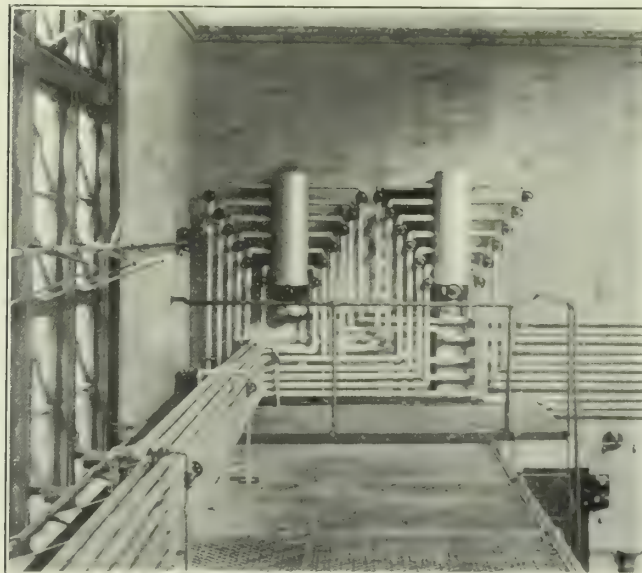
The customary European practice of choosing a site of sufficient dimensions to furnish most of the bathing facilities on one floor is not desirable in this country, where compactness and facility of operation are essentials, because of the fact that our public funds do not permit a large initial expenditure for the acquisition of the site. Here baths are usually located in tenement sections where property is held at a high figure, and they must therefore be economically planned.

The site for the bath should be easily accessible and convenient to a public school; should not be too near a river, particularly if river bathing be available, and, if possible, should be located on a corner, to allow for exits and entrances on two streets, thus separating the sexes. All of these conditions must be carefully weighed in selecting a site. An important matter is the disposition of baths at proper distances from each other, and in the most populous sections it would seem desirable to locate them not more than half a mile apart. A series of small buildings equipped with showers grouped around a larger central building, equipped with a pool as well as showers, would be an effective arrangement. This would differ from the English idea in that the minor establishments would be considerably smaller and the buildings more closely grouped.



SHOWER COMPARTMENTS SHOWING PIPING

WEST SIXTIETH STREET BATH, NEW YORK.

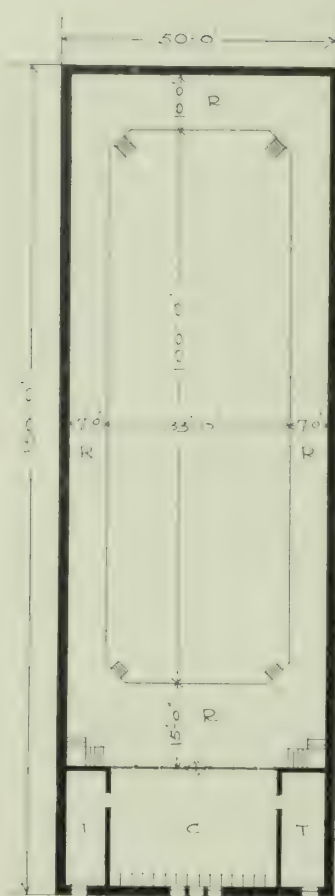


VALVES, PIPING AND WATER DRUMS.

No public building offers so many difficulties in the matter of selection of site as the public bath. It obviously should be located in the most densely populated section, but such a location does not necessarily imply its success, for the character of the population may change as well as the character of the buildings. Frequently tenement houses are replaced by commercial structures, or there may be an influx of some foreign element which refuses to patronize the institution, and thus handicapped the bath may prove a failure. On the other hand, some of the native-born population have an aversion to the public bath patronized by foreigners. One of the New York City baths is situated on the dividing line between colored and white populations, and the problem of keeping order and superintending the institution is for this reason a most difficult one. While the mission of the bath is to promote homogeneity, it can hardly be expected to solve the race question. If this bath had been placed either in the heart of the white or the colored section, its value to the community would have been greatly enhanced.

The exterior should express the purpose of the building, and while the architect may desire to design an impressive exterior, he must not forget that excess of ornamentation increases the initial cost, and that a pretentious façade repels the poor and defeats the true purposes of the building. The problem is in many ways similar to that of the hospital; fundamentally it must be treated from the standpoint of sanitation, as the mission of the bath is to elevate the standard of cleanliness and public health.

The plan must above all be simple in general arrangement, providing liberal openings for light and air, as the best results are not obtained by use of artificial light or forced ventilation. The work of the institution is greatly facilitated if the corridors are made direct and in easy communication with the entrance halls. Ease of supervision is an important factor. All parts of the building should be accessible, so that if any part of the equipment is damaged it may be quickly located and repaired. There have been several cases where



TYPICAL POOL AND CLEANSING
ROOM PLAN.

C. Preliminary Cleansing Room.
P. Pool. R. Runway. T. Toilets.

and women's waiting rooms, and it should be in instant touch with every part of the building, either through speaking tube or telephone. Occasionally we find the superintendent's office provided with a separate staircase leading directly to the bathing halls above, and it is desirable to provide for direct communication with the boiler rooms below.

In considering the form of bath to be used, what proportion of shower, tub and plunge units should be planned for in order to insure the best results, the problem often becomes very complex. Before proceeding with the planning of the bathing halls and their equipment, it may be well to emphasize the most important factors which make for the ultimate success of the bathing hall — sanitation, economy, popularity. What form of bath best insures these results?

The tub bath has been objected to from the standpoint of sanitation, as it is the most difficult of all fixtures to keep clean, and owing to the space required and the great amount of water consumed can no longer be seriously considered in bath equipment. The principal virtue of the shower bath is its sanitation, — its popularity and economy are in question. The form of angle valve in use to-day in shower compartments does not control the water consumption, and as the valves are under the bather's own control they are frequently left open, causing considerable loss of water. There are sometimes bad cases of scalding in the compartments, and another objection is the difficulty of properly super-

sudden failure in some parts of improperly planned systems have resulted in great damage to the building.

To facilitate the circulation, and to provide for the continuous movement of large crowds in the summer season the waiting rooms should be planned of ample capacity but not to encroach on the bathing hall space. A fair ratio would be about twenty-five per cent of the total ground floor plan, and in case the building has a second story of showers this proportion of waiting-room space should be slightly increased. It is customary to give to the men's waiting room about two and a half times the space allotted to the women, this being the average relative attendance of the sexes.

The staircases should be so arranged in the waiting rooms as to avoid converging lines of bathers and they should be of easy runs and ample width. The superintendent's office is generally placed between the men's

vising a large number of bathers who crowd in the compartments and thus destroy its principal virtue, the isolated bath.

Any form of bath must be popular and the shower lacks popularity with the masses. Of all the baths the pool best combines sanitation, economy and popularity. Up to very recently the pool bath has not been truly sanitary, but there is no reason why, with proper devices, the pool may not be made absolutely safe. In England the authorities maintain that if the pool is sufficiently large and properly replenished it is an ideal form of bath.

London has over sixty public baths equipped with pools, furnishing accommodations annually for millions of bathers, and the death rate has shown a considerable decrease in the last two decades, the time that most of these baths have been in operation. Just what part the pool is a factor in the general public health would be difficult to determine, but the consensus of English opinion is that a pool properly constructed should be incorporated in every bath house.

As to its economic value, the initial cost of the pool is less than any other form of bath,— furthermore, the water consumption, being under absolute control of the superintendent, is much less than in other forms of bathing.

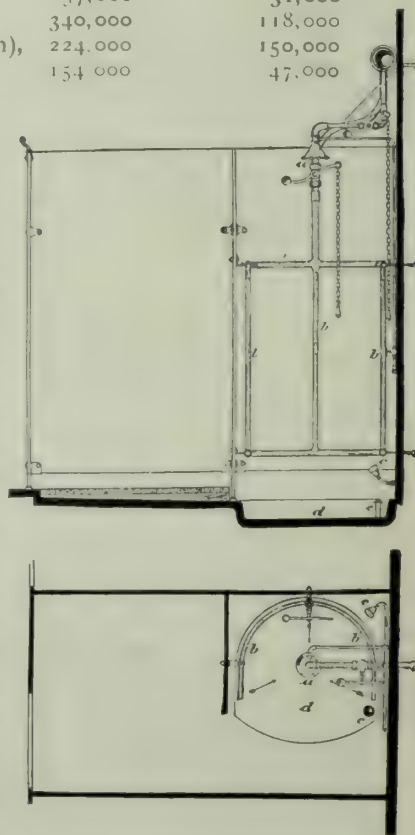
It requires less supervision and also costs less to maintain, as the waste lines and fittings are considerably simplified.

The popularity of the pool bath has never been questioned. According to a table recently compiled in England, the attendance for one year in the various forms of bath is as follows:

	Pool.	All other baths.
Birmingham,	302,000	126,000
Coventry,	57,000	31,000
Liverpool,	340,000	118,000
London (Islington),	224,000	150,000
Salford,	154,000	47,000

In this country a recent test in a public bath showed a ratio of three pool bathers to one shower bather, but what is still more significant is the fact that on certain days, when the plunge bath was not in operation, the bath house was practically without patrons.

A most interesting and gratifying sight is to visit one of the London public baths on the day of a swimming competition, where the pick of the swimmers of rival districts and their numerous adherents, many of whom have also earnestly trained for these events, enthusiastically cheer their fellow swimmers.



PLAN AND SECTION OF SHOWER COM-
PARTMENT, FOREIGN BATH.

in friendly competition. Such a facility cannot fail to promote manliness as well as to elevate the general health and moral tone of the community. The pool will be a valuable auxiliary to modern public school education when the art of swimming is included in the curriculum.

In proportioning the bath units it is evident that the pool should have the greatest number with the shower baths as auxiliary, in ratio of three to two, and on a basis of a hundred bath units the ratio would be as follows:

Pool,	60
Men's showers,	26
Women's showers,	12
Toilets,	2

A building with this equipment could be adopted as a type for all cities of the first and second class.

The pool room should be planned of liberal height, with window openings so arranged as to avoid condensation and the much dreaded draught. The water area of the pool should be proportioned to the dressing room capacity, and the area of the pool should be sufficiently large to promote sanitation. It is customary to plan the length at least twice the width, preferably not over a hundred or less than sixty feet. The floor of the pool should be properly graded, having a shallow end for beginners and allowing a deep place for diving.

There are three different forms of floor sections in use, as shown in the illustrations. The slope may be considered preferable for baths of ordinary capacity, as it gives an unbroken surface and easy fall throughout. For the larger pools the broken floor section may be used. This is much favored in Germany, as it has the advantage of allowing a level floor for beginners, who invariably have a dread of a sloping floor no matter how gradual it may be. The depth of the pool is frequently over ten feet, to obviate all danger in diving, but this plan requires the heating of a large volume of water.

It is desirable to arrange the shower baths in longitudinal lines for ease of supervision as well as simplicity of piping, and it would be



SHOWER HALL, WEST SIXTIETH STREET BATH, NEW YORK.

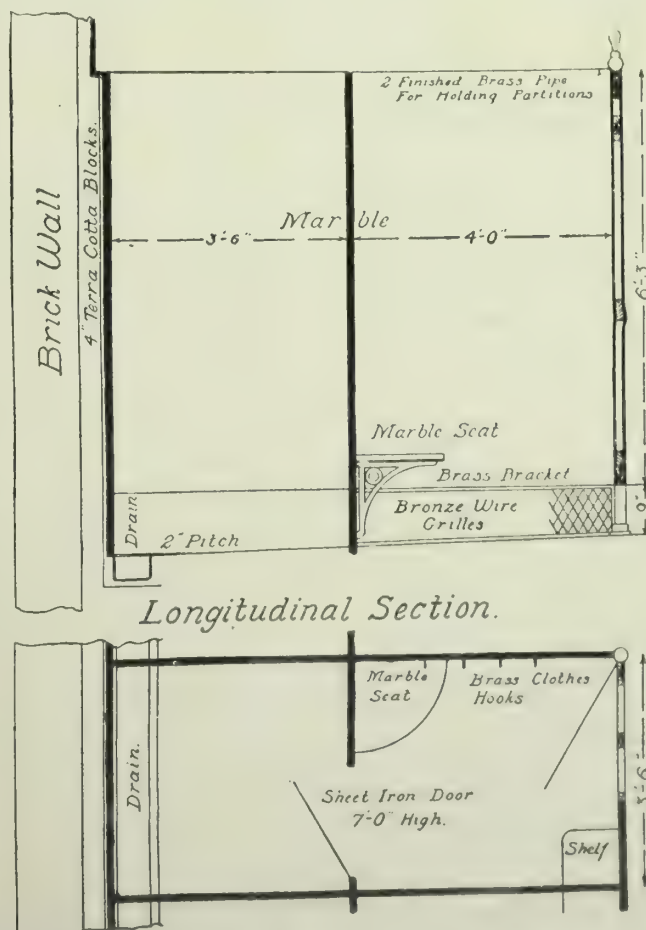
well to allow some additional working space at the entrance of the shower bath halls, to permit an uninterrupted movement of the bathers at all times. While the shower halls are frequently worked to the limit of their capacity in the summer season, in winter the attendance falls off rapidly, and arrangements should accordingly be made to shut off a row of showers, a wing, or even an entire floor, should the lack of attendance warrant it. A collapsible compartment might be constructed which could be removed in the dull season. This should, of course, be done without affecting the water-tight qualities of the

floor. The surplus bathing hall space could then be used for assembly purposes. It has been noted that the English use their plunge rooms for these purposes during the dull season.

There is little to say of the tub rooms and toilets. If the former are considered necessary they should be inconspicuously placed. The general practice of placing the toilets directly in the bathing halls in an interior position is not desirable, as it is far better to depend on outside ventilation.

The laundry is not as yet considered an integral part of the American public bath, but its real value will eventually be recognized. The working classes have an aversion to publicity in their domestic affairs and are reluctant to use the laundry, but if it is properly planned with ample light and air, its advantages and conveniences become so apparent that this feeling of distrust is soon overcome. If the problem demands the placing of the laundry in the basement, the work rooms should be high and the first tier of beams well elevated above the sidewalk, and it would be well to keep the patrons of the laundry from coming in contact with the bathers. The exact disposition of the washing, drying and mangling machines depends entirely on the type of machines used, but in any case it is well not to crowd the machines and to allow liberal working space.

The engine and boiler



TYPICAL SHOWER COMPARTMENTS, AMERICAN BATH.

room is generally placed under the waiting rooms in our large municipal bath houses,—in a place too restricted, poorly lighted and with little means of direct ventilation. The foreign baths have proved far more liberal in their boiler and engine space. The severe demands made upon this part of the building, the multiplicity of apparatus and pipes, require a liberal distribution of the entire plant, and the architect should give the necessary time and attention to insure not only the accurate placing of the various apparatus but the arrangement of the various lines of piping and valves, as the ultimate success of the building depends on this. In the recently constructed baths in New York City, where space was restricted, it proved advisable to excavate under the sidewalk. This allowed additional source of light and air, which was further assisted by window openings on the rear courts.

Ample room should be provided for the numerous lines of pipes, ducts and filters, also for the pump and other apparatus required. A break in a too compact space makes immediate repairs impossible, and often requires the taking down of a considerable part of the plant. A liberal factor of safety for overload should be provided, as the demands in certain seasons of the year are severe.

A double set of pumps, engines and dynamos are an advantage, although one set is sufficient to run the plant under ordinary conditions.

The coal bins should have sufficient storage for emergency purposes, and the boiler room should be properly isolated from the rest of the plant. The engineering force should be provided with locker rooms, a convenient work room and adjoining toilets. Emergency ladders should be placed at accessible points.

The writers have noticed that some of the public baths are not equipped with attendants' rooms; a room for this purpose should be arranged on every floor or wing of the building with proper locker and toilet accommodations.

Superintendent's living quarters is a much mooted question,—whether it is advisable to provide for the superintendent's quarters in bath buildings for cities of the first and second class in this country. About one-third of our institutions are so equipped. They should by all means be provided for. They may be placed in an upper story in order not to diminish the working capacity of the bath, and the cost is more than compensated by the additional care and supervision which the building receives. If possible, the living quarters should be provided with a direct outside entrance, affording at the same time immediate access from the hall to the various shower and bathing rooms of the building. The living quarters are generally disposed over the waiting rooms, or, in case of a second story of showers, above them.

We have discussed the planning and functions of the public bath house and a few words on the construction of the building may be of some value. The materials for the building, as in the hospital, must be primarily selected for their sanitary qualities, but they further require an ability to withstand the severe amount of wear and tear received from the bathing public. The disintegrating effects due to the steam and water must also be considered, and the architect must bear in mind that the waterproofing must be as nearly perfect as possible.

Eliminate as far as possible all openings for pipings, standards or fixtures. It is safe to say that no bath building yet constructed has not suffered more or less from leakage.

The fittings throughout should be of the strongest character and sufficiently heavy to withstand the hardest usage. For this reason the spray and foot baths, used in the modern Berlin Baths, with their exposed piping and elaborate fittings, are not adaptable for our purposes.

The circulation of water in the bath may be likened to that of the blood in the human system,—the main

rising lines to the arteries and the network of branch lines carrying the water to the numerous bath compartments in the remotest parts of the building, to the veins. Perfect circulation is most essential, and, to further this, the street supply must be of sufficient pressure to carry the water to the highest levels without the use of pumps. The street sewers should be of sufficient depth to drain the lines by gravity. All piping must be exposed, should be direct as possible, and have the controlling valves in convenient positions.



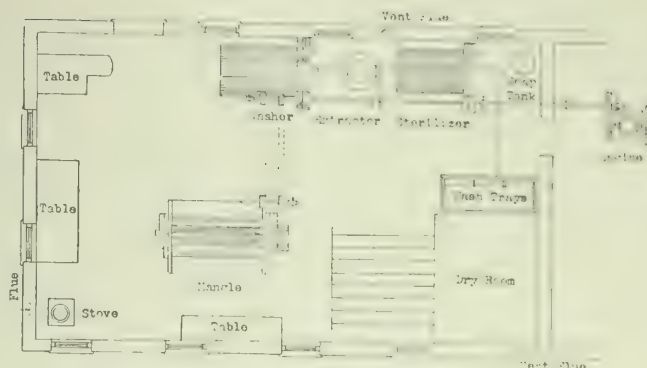
FLOOR SECTIONS FOR POOL BATHS.

The proper cleansing of the surface water of the pool is important,—a superficial spray has been provided for the purpose, generally introduced under considerable pressure through a perforated pipe. The movement of this superficial current is further assisted by arranging an overflow gutter at the opposite end of the basin. The inlets of the pool are so disposed as to further this circulation and keep an even temperature throughout the pool. Considerable difficulty is encountered in producing a uniformly heated volume of water. To overcome the cold spots there are various arrangements provided to obtain these results. A common English method is to increase the circulation by providing a return main from the pool to the boiler and by gravity keep up a constant circulation similar to that in the ordinary house boiler. This method has the serious objection of re-using the old water and from principles of sanitation cannot be commended except in pools where a very moderate amount of work is required. There are also various systems of steam injection, either directly into the pool or else by means of tapping the supply line at certain intervals with injectors of live steam. This produces a rapid cir-

culuation of the water, but both systems are subject to the noisy steam hammer, and in the latter case the introduction of live steam into the pool frequently results in severely scalding the bather.

The position of the heating coils, the proximity of the skylights, are all considerations which effect the temperature of the pool.

We have indicated in outline the extent of the modern bath movement. It is evident that our institutions do not compare either in size or impressiveness with foreign



TYPICAL PLAN OF LAUNDRY FOR PUBLIC BATH.

comprehensive system of public baths worthy of American communities and ideals.

(CONCLUDED.)



PUBLIC BATH AT SELLY OAK, ENGLAND. Arnold Mitchell, Architect.

THE task of housing in one city hall the vast and hitherto scattered municipal machinery of London has fallen upon the shoulders of Mr. Ralph Knox of Chelsea, a young architect previously little known to fame. As the author of the successful design he has shown great skill in economizing internal space within an irregular area that fronts the south bank of the Thames by seven hundred feet near the Westminster Bridge. Public discussion has been chiefly directed to the exterior. With the character of Somerset House in mind he has chosen to rely for effect upon long, unbroken horizontal lines and the great mass of the building. The skyline is broken only by eight chimney stacks and a central flèche. The design is generally felt to be a worthy successor to the works of Inigo Jones, Sir Christopher and Sir William Chambers.

IN Paris a society devoting itself to economical buildings for the poor has opened an apartment house for large families only. None with less than three children is admitted. The rents vary from \$36.80 to \$84.80 a year. The building was immediately filled, and a census showed that the ninety-four separate apartments sheltered six hundred and twenty persons, of whom four hundred and twenty-seven were children. Most of the tenements have a large balcony upon which a good-sized living-room opens. The partitions between the parents' and the children's rooms extend only three-quarters of the height to the ceiling. The window sills are so high as to prevent the children climbing to them; and at every stairway, in addition to the regular steps, there is a flight of steps of half height that the little folks can mount without effort. The fire escapes are unusually complete and commodious.

Armories for the Organized Militia.

LIEUT.-COL. J. HOLLIS WELLS.

(Of Clinton & Russell, Architects.)

IN designing a building to meet the requirements of a military organization, the character and size of the organization must, of course, be taken into account and its needs must be studied.

An armory should be built as nearly fireproof as possible. It should be substantially built and have entrances and exits, which, though ample, should be so arranged as to be easily protected from the mob. There should be enfilading towers with narrow windows so arranged for rifle fire that streets at or near these exits may be cleared.

The building generally should, therefore, be designed in a simple, straightforward manner, combining many of the features of the mediæval fortress or castle, and although it is not anticipated that troops will have to stand a siege therein, nevertheless many of the ideas of early architecture may well be adopted in planning, for soldiers may have to enter and leave their armories under adverse circumstances. The roofs of armories should be easy of access for the troops, and parapets and platforms should be arranged for riflemen so that they may control all surrounding streets and buildings. At least a portion of the building should be higher than the roofs of the buildings adjoining, so that there may be no chance for damage being done from them.

A well-selected hard-burned brick, carefully laid up in cement mortar, is both substantial and economical for front work. Granite, perhaps, is best adapted for special trim of the façades and may be used to excellent advantage for base, copings, band courses, and around windows and doors, but beyond this, unless cost is not to be considered, it is not desirable to go. Troops at any rate are simply a necessary evil, they are expensive to maintain, and the buildings in which they are quartered should be simple and in keeping with the purpose for which they are intended, *i. e.*, for the housing and drilling of bodies of men whose training is along simple, practical martial lines and for the proper storing of quartermasters', commissary and ordnance supplies.

All exterior doors and windows at or near the level of the street should be protected with heavy iron grilles and gates, and double sets of heavy, hard wood doors, hung on specially strong hinges, opening out, are necessary.

In planning the interior of an armory, the size of the property determines the lay-out. Generally in the cities and larger towns where armories are usually located the cost of the property limits its area. If, therefore, it is necessary that the building should be several stories in height, a very excellent plan would be obtained as follows:

The main consideration is the drill hall, which, if possible, should approximate in size not less than 200 x 300 feet for a regiment of infantry, consisting of twelve companies. The floor should be near the street level and should open directly thereon. The hall should be lighted and ventilated from the outside by windows high up in the walls and above by a clere-story with adjustable side-lights running nearly the entire length of the hall. The clear height of this hall from the floor to the lower chord

of the roof trusses should be at least forty feet, except on the sides and ends, where galleries for spectators may be placed, and the height under the lowest point of these galleries should not be less than twelve feet. Galleries should be suspended from the roof trusses so that the drill floor is not obstructed by posts. They should have ample flights of stairs at the four corners of the drill hall leading to exits to the streets.

Except for cavalry, wood floors are preferable generally throughout. The drill-room floor should be designed for a total load of three hundred pounds per square foot. The arches between the floor beams may be brick or hollow terra-cotta blocks brought up level to the tops of the beams, and on top of this may be laid 3 x 4 inch yellow pine sleepers, beveled on the edges and fastened to the I beams 16 inches on centers with strong wrought iron clips. Between the sleepers and level with their tops lay a good rich cinder concrete, and in order to avoid dust through the flooring, lay a covering over the top of the sleepers of hot asphaltic cement and three ply of roofing felt turned up on walls and around all pipes, etc.

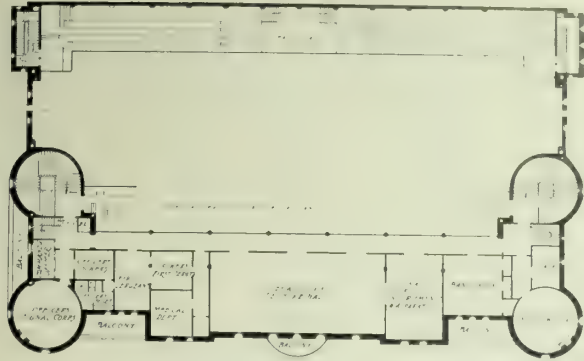
A very satisfactory flooring is a first quality clear, kiln-dried, heart-face, comb-grained Georgia pine, tongued and grooved, blind-nailed to each sleeper with two twenty-penny wire nails. The floor strips should be about two inches wide and two and one-half inches thick laid very close and absolutely level. It should be throughout of the very best selected stock, free from knots, stains and perfectly sound. The best of care should be exercised in selecting this material and in laying it. The entire floor should be smoothly planed, scraped and sandpapered to a satisfactory surface and on completion covered with a hard finishing oil. No base is required around the walls but a one and one-half-inch quarter round molding of yellow pine may be run to obtain a neat finish.

It is unnecessary to plaster or even paint the interior walls of the drill hall; brick laid up in English bond with white struck joints and light terra-cotta trims around window and door openings have proven highly satisfactory both from an artistic and utilitarian standpoint. In fact, generally the staircase and entrance halls may be treated in the same manner.

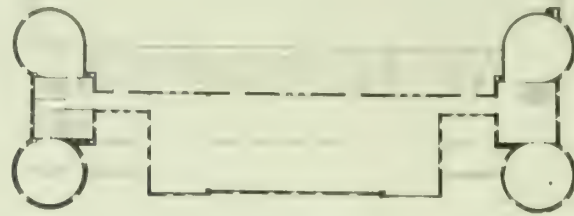
The roof over the drill hall is generally an interesting problem. An excellent example of this is in the 71st Regiment Armory at Park Avenue and 34th Street, New York City, where the roof is carried by five pin-connected trusses of modified Pratt type with inclined top and bottom chords, the latter being curved to give an outline suggestive of arch construction and secure an increased clearance without involving an unnecessary height of end column to develop large moments of flexure. The trusses are 190 feet 4 inches long center to center of end piers and are 24 feet deep in the center. The bottom chord has a versed sine of about twelve feet and converges from the lower end panel point to intersect the top panel chord at the end pin where it is pin-connected to a steel wall column. The ends of the bottom chords are extended from the lower end panel point by false members tangent



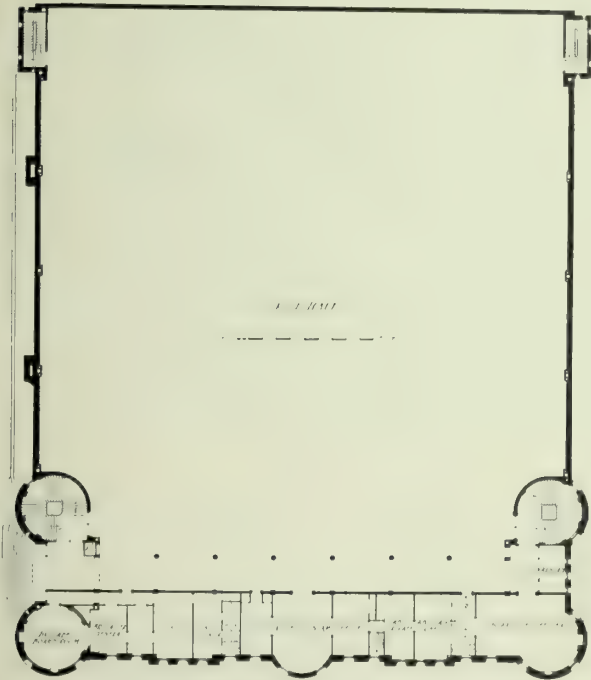
SEVENTY-FIRST REGIMENT ARMORY, PARK AVENUE AND THIRTY-FOURTH STREET, NEW YORK. Clinton & Russell, Architects.



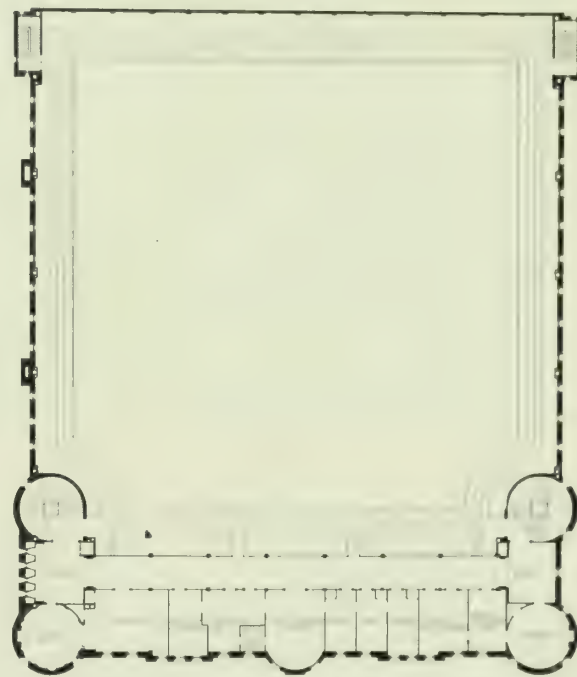
THIRD FLOOR PLAN.



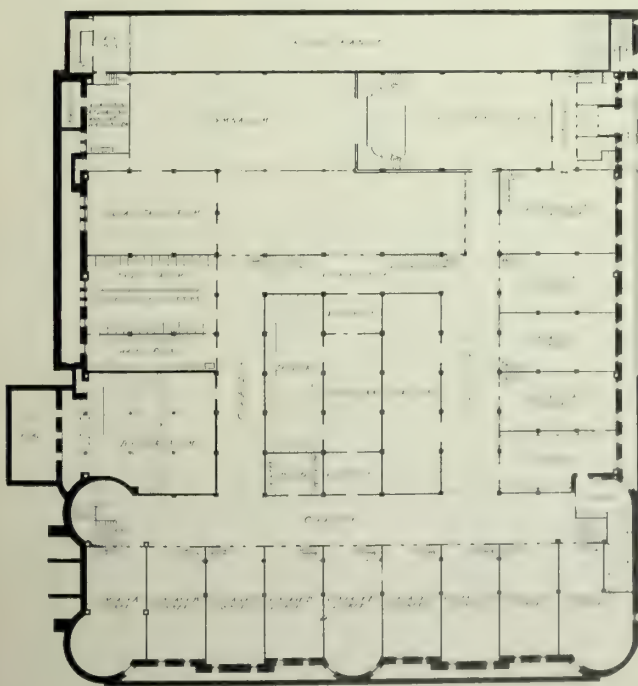
FOURTH FLOOR PLAN.



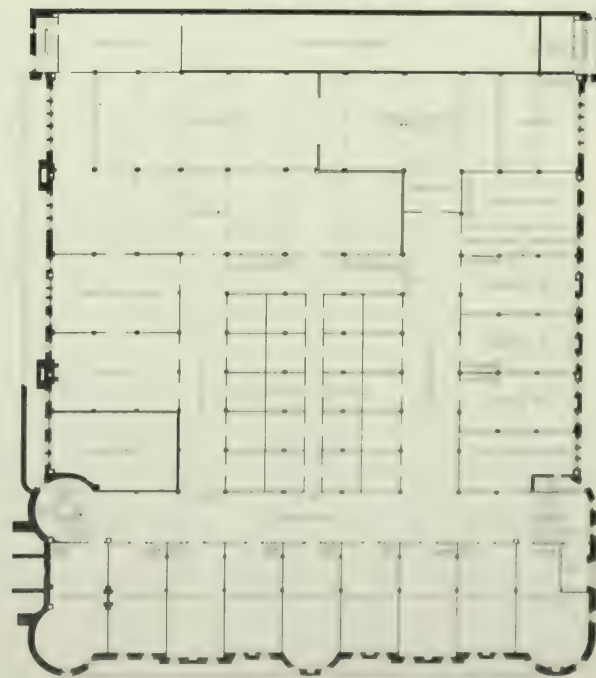
FIRST FLOOR PLAN.



SECOND FLOOR PLAN.

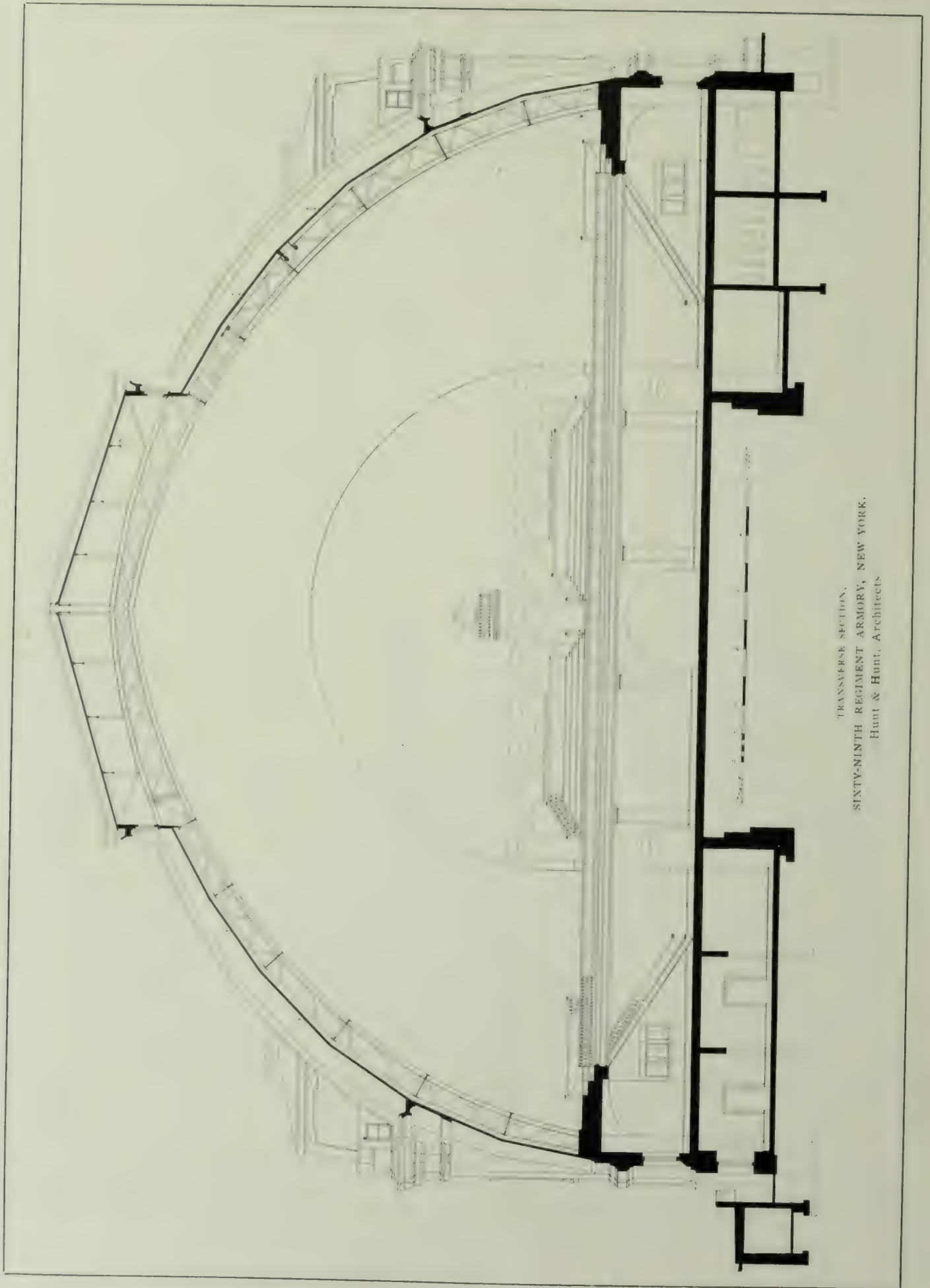


BASEMENT PLAN.



BASEMENT MEZZANINE PLAN.

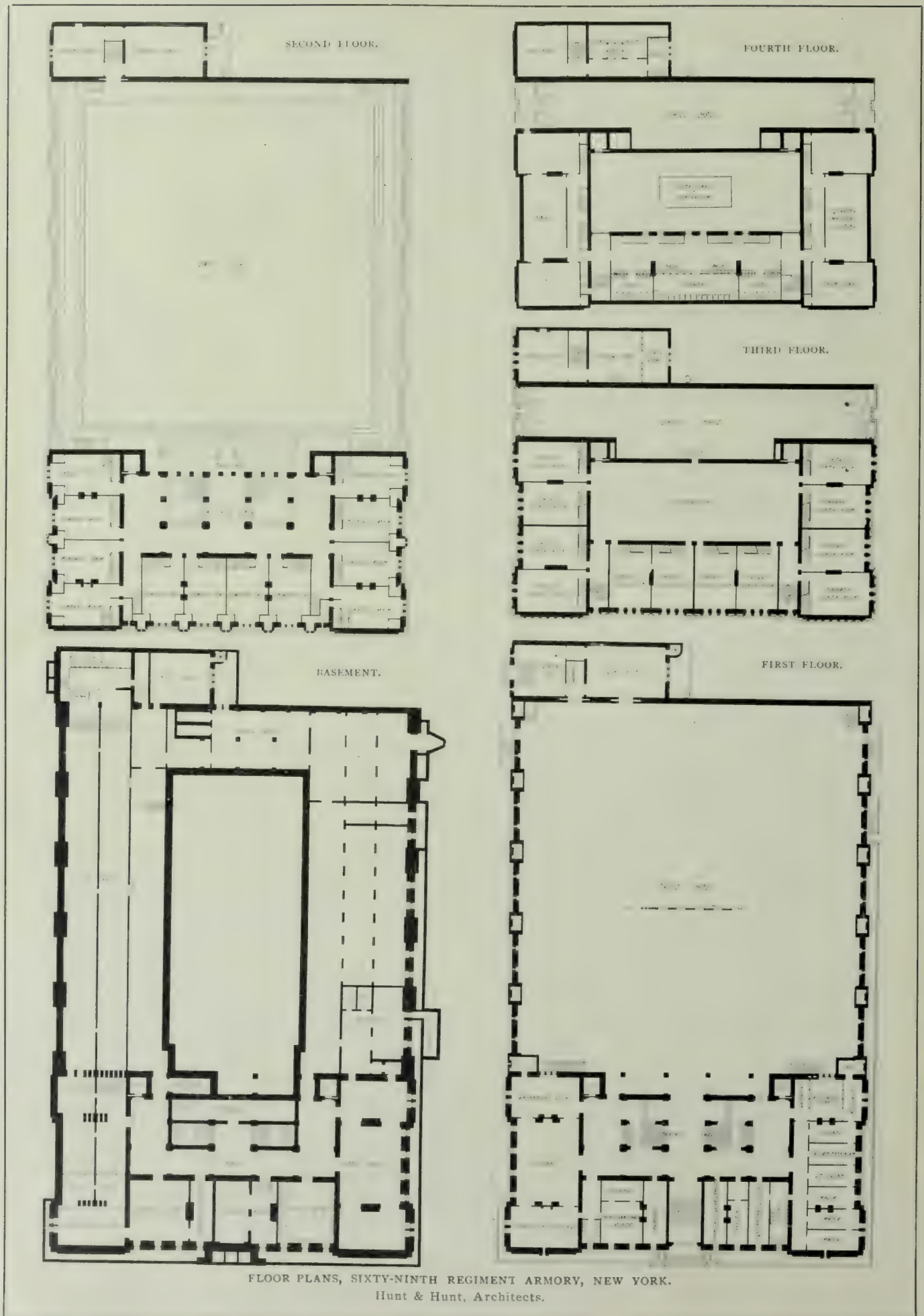
FLOOR PLANS, SEVENTY-FIRST REGIMENT ARMORY, NEW YORK.
Clinton & Russell, Architects.



TRANSVERSE SECTION,
SIXTY-NINTH REGIMENT ARMORY, NEW YORK.
Hunt & Hunt, Architects



SIXTY-NINTH REGIMENT ARMORY, LEXINGTON AVENUE AND TWENTY-SIXTH STREET, NEW YORK.
Hunt & Hunt, Architects.



to them and curved to make tangent connections with web plates projecting from the sides of the wall columns. These members serve as knee braces uniting the wall columns and trusses and completing the arched outlines of the lower chords. The trusses are supported on $7\frac{3}{4}$ -inch pin-bearings. At one end of the truss this pin engages the top of the wall column and provides a fixed support for the truss. Here the connection plates, to which

the top and bottom chords are riveted, are extended below the latter to form jaws which are field riveted to the wall columns and give increased rigidity to the connection. At the other end the bearing pin engages a pair of $16 \times 1\frac{1}{2}$ -inch vertical link plates about four feet long. The upper ends of these links engage a $7\frac{3}{4}$ -inch pin through the cover plates of the wall column. This arrangement provides a swinging support for the truss and allows longitudinal movement to correspond with temperature variations. The end of the truss projects inside the column and has clearance there between a pair of vertical guide angles, which engage the lower edge of the connection plates and prevent under transverse displacement.

The trusses are connected by longitudinal purlins in vertical planes web-connected to them at each panel point. The purlins are riveted trusses with a uniform depth of about six and one-half feet; part of them have the connections for the vertical suspension rods to carry balcony and gallery platforms. Provisions are also made to carry the gallery suspenders from the first and second panel points at each end, where the vertical rods have nut

bearings on the upper ends of vertical angles riveted inside the bottom chord channels. Bent plates about six feet apart are riveted to the top chords of the purlin trusses to form inclined seats for the jack rafters, which are 7-inch I beams receiving the floor system. The wall columns which carry the roof trusses have the required cross-sectional area built up with half a dozen 16-inch cover-plates $\frac{1}{2}$ and $\frac{3}{4}$ inch thick. They are made

in two-story sections spliced together with cover-plates and horizontal diaphragms between flange angles riveted to the channel webs. The heaviest wall columns have a maximum load of 168 tons and a sectional area of 24 square inches.

The lower chords of the trusses are secured transversely at the center and at the quarter points of each truss by a pair of inclined $\frac{7}{8}$ -inch sleeve-nut rods in longitudinal vertical planes, which have their upper ends connected to the lower flanges of the purlin trusses at the adjacent panels. These rods have eye-bar heads drilled for 1 inch bolts. At the lower end of the rod this bolt engages lugs at the foot of a



DETAIL OF LEXINGTON AVENUE FACADE.
SIXTY-NINTH REGIMENT ARMORY, NEW YORK.
Hunt & Hunt, Architects.

pair of vertical angles riveted across the face of the truss. At the upper end the rod is connected by a pair of links to a web plate projecting from the seat of the intermediate purlin. The end purlins have their bottom flange angles extended and built into the brick gable walls. Pairs of lug angles are riveted to them just clear of the brickwork to receive the sway rods. All of the steel and iron work in the drill hall and the ceiling is painted three coats of light green.

Editorial Comment and Miscellany.

THE DEVELOPMENT OF POLYCHROMATIC EXTERIOR GLAZE DECORATION.

ALL who are interested in architecture and the ceramic arts are familiar with the growth and development of glaze decoration. The porcelain tower at Nankin, built 833 B. C., was one of the best examples of exterior polychromatic glaze decoration. The Assyrians, Egyptians, Italians and Spaniards have all left many beautiful examples of what has been done with colored glazes applied to building exteriors and interiors—some of them date back to 3,000 B. C.

The glazes mostly used by the ancients and during

glazed with every known color and texture, is within the reach of every architect, and there is no reason why, with all of our advanced methods of manufacture and the discovery of the lost arts of glazing, more monuments of architectural beauty, such as the Academy of Music in Brooklyn, will not be erected.

This building of Byzantine architecture, modeled in high relief and glazed in oriental tones, covers a city block. While the glaze color treatment has been criticised by some, this is no reason why polychromatic glazed exteriors should be condemned. Those who criticise this sort of work, with an idea toward condemning it, stand in the way of architectural and ceramic progress, and incidentally in their own light. This is the only means of beautifying our cities with a sanitary fireproof and weather-proof material. — *Herman A. Plusch, in the Ceramic Studio.*



MAIN BUILDING, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINN.

Clarence H. Johnson, Architect.

Two hundred and fifty thousand mottled granite brick used for facing. Made by Twin City Brick Co., St. Paul, Minn.

mediaeval times were the transparent lead, and in some cases, as in Lucca Della Robbia's work, the opaque tin enamels. The best examples of polychromatic glaze work are to be found in the Mediterranean countries. The clear air, colored skies and changing waters furnished inspiration for the early ceramists, and they have handed down to posterity records of color which will neither fade away nor be destroyed by the ravages of time.

The Greeks, not satisfied with monochrome for their beautiful marble temples and public buildings, embellished them with various colored paints; it almost seems a sacrilege to us, but what was the effect? They have stood the architectural criticism of centuries, and are now being reproduced in more durable material.

Terra cotta modeled in every conceivable design,

THE Right Hon. John Burns has introduced into Parliament a bill which has for its object the scientific planning and improving of cities and towns with the aid and authority of the Government. The general welfare, rather than that of the individual, is to dominate. The growth and success of this idea in England and on the Continent, the substantial sums contributed by individuals there to further the propaganda, the inquiries started by very influential persons here, the proposal to have foreign experts lecture on the subject in this country; these things foretell a time, perhaps, when not only individual buildings will be designed, but also their arrangement in groups, and their relation to each other will follow a pre-ordained plan, when localities will be improved with a view to the public weal and not left to the fate of land speculators.

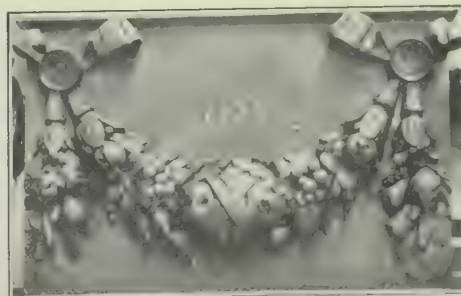


REFECTORY AND BOAT HOUSE, GARFIELD PARK, CHICAGO.
W. C. Zimmerman, Architect.

Roof of Green Glaze Tile made by Ludowici-Celadon Company.

THE TOLL OF CARELESSNESS.

DURING the last five years fires in the United States have destroyed property valued at \$1,257,716,955, or an average of \$251,000,000 a year. The tabulation by underwriters shows that the greater number of fires come from preventable causes, such as defective chimneys and flues, fireplaces and heating and lighting apparatus. Carelessness in construction and in maintenance and protection of property by owner or tenant is responsible for this waste of property, says the *Boston Herald*. The human fault cannot be eliminated entirely, but competent, honest inspection at the time of construction and at stated intervals thereafter should reduce the percentage of preventable fires. New laws are needed to keep pace with development of the builders' craft. But the greatest need is better enforcement of the laws that now exist.



DETAILS FOR ST. CLARE'S CHURCH,
NEW YORK.

N. Serracino, Architect.

Made by Atlantic Terra Cotta Company.

APARTMENT HOUSE, PARK AVENUE AND SIXTY-FIRST STREET, NEW YORK.

PLANNED for one apartment on each floor, except the first floor, on which, in connection with the basement, are two duplex apartments. Rooms are finished in white enameled wood with mahogany doors

and hard wood floors. Each apartment is furnished with regulated steam heat, hot and cold water, artificial refrigeration and a vacuum cleaning system. In each apartment are five fireplaces with independent flues. There are facilities in the basement for washing, drying and ironing and for storage. Two safes for valuables are built in the walls of each apartment.

The entire façade above the third story, including the

cornice, bay windows and balconies, is of mat glaze terra cotta, which matches the lower stories, which are of marble. The terra cotta was furnished by the At-

lantic Terra Cotta Company.

BUILDING OPERATIONS FOR MAY.

OFFICIAL reports of building operations in forty-five leading cities throughout the country received by *The American Contractor*, New York, show somewhat of an improvement as the season advances. The aggregate loss, as compared with May, 1907, is 25 per cent, whereas the previous month suffered a decrease of 33 per cent, as compared with 1907. Only ten cities reported an increase, ranging from 1 to 163 per cent, while thirty-five show losses ranging from 2 to 73 per cent.



HOUSE AT CLEVELAND OHIO.
Harlen E. Shimmin, Architect.
Roofed with Imperial Spanish Red Tile.
Made by Ludowici-Celadon Co.

APARTMENT HOUSE, MADISON AVENUE AND EAST FIFTY-FIFTH STREET NEW YORK.

PLANNED for one apartment on each floor. The halls are spacious; there are separate quarters for servants, and additional rooms may be had by the tenants when desired. The system of heating and ventilation gives to each room a complete change of filtered air at short intervals without the necessity of opening the windows. Heat is supplied from the street mains of the New York Steam Company.

MR. OSCAR HAMMERSTEIN, who intends to lift Philadelphia to the honor of supporting permanent opera, intends also to give that city a demonstration of speed. Demolition on the site was begun March 30, and the impressario declares that the first performance of grand opera will be given on the evening of November 17. Mr. Hammerstein is also something of an architect, — has been, like many other people, "his own architect." "One of the unpublished New York oddities of Hammerstein," says the Philadelphia *North American*, "was his acting as his own architect of the Victoria Theater, and failing to note, until a week before its opening, that he had not provided for a box office in his plans."

THE famous Drury Lane Theater in London was entirely destroyed by fire on March 25. The ruins of this, one of the most celebrated playhouses in the world, are full of memories. It is the third time that it has been destroyed by fire. The original building, erected under royal patent in 1663 by Thomas Killigrew, was burned in 1672. Two years later, when the theater was rebuilt, the architect was Sir Christopher Wren. Colley Cibber and his associates managed it through palmy days and later gave way to Garrick, who, with Peg Woffington and Kitty Clive, made the house a landmark in London's dramatic history. In 1791 the second house was torn down and another, under the management of Richard Brinsley Sheridan, was erected. In 1809 this building

burned, and the one just destroyed was erected three years later.

PROBABLY only a few persons now living will be able to see the Washington Cathedral completed, but none can fail to be impressed with the design by the late Henry Bodley of London and Henry Vaughan of Boston. This, as exhibited at the Corcoran Gallery in Washington during the last few weeks, is seen to be based upon the recognized English precedents; and while conservative of conception, it is destined to be a great and lasting ornament when reared upon Mount St. Alban.

THE demand for buildings in Washington capable of accommodating large gatherings of people seems never to be adequately filled. The Tuberculosis Congress has applied for permission to use the old Pennsylvania Railroad Station at Sixth and B streets. Already a portion of this has been claimed by the Treasury Department for the storage of articles intended for the coming exposition at Seattle, and the National Museum also desires it for storage until the museum's new building in the Smithsonian grounds is completed. Under these conditions certainly activity in public building at Washington cannot easily be overdone.

THIS will be a record year for new building at Princeton University. The expenditures aggregate nearly two million dollars. The new physical laboratory

is now building, the laboratory of biology and geology will be started this month, and soon, also, the Gothic dormitory, presented by the Class of '77. In the near future are to be started the freshman dormitory, presented by Mrs. Russell Sage; the John R. Thomson Grad-



SPANDRIL OVER AN ENTRANCE.
Schmidt, Garden & Martin, Architects.
Northwestern Terra Cotta Co., Makers



BUILDING FOR I. O. O. F., BUFFALO.
Thomas W. Harris, Architect.
Light brick used in base and trim made by Kittanning Brick Co.



DETAIL BY F. H. KIMBALL, ARCHITECT.
New York Architectural
Terra Cotta Co., Makers.

ter and find it far cooler in summer than any house I have ever lived in. I have had a wide experience in building houses and firmly believe that I have solved the problem in a most satisfactory manner. The cost, it may be added, exceeded very little that of wood construction."

IN GENERAL.

The City Parks Association of Philadelphia in its endeavor to stimulate interest in the development, not only of new parks for the city, but in creating public sentiment in favor of making better use of what the city already has in the way of open spaces, has appropriated one hundred dollars for a prize for a scheme of decoration for the City Hall Courtyard and the pavements surrounding this building. They have appointed John F. Lewis, President of the Pennsylvania Academy of the Fine Arts; David Knickerbacker Boyd, President of the Philadelphia Chapter, American Institute of Architects, and Milton B. Medary, Jr., President of the T-Square Club, to act as a Committee and Jury of Award to arrange an open public competition, to secure plans and drawings with the above end in view. The Commission has associated Prof. Paul P. Cret of the University of Pennsylvania to assist them in carrying out this work.

In the entrance to Prospect Park at Ninth Avenue and Fifteenth Street, and the Monument to the Prison Ship Martyrs, Brooklyn will possess two works of the late Stanford White that are distinctly his own. The monument will be dedicated in October. It consists of a Doric shaft of Newport white granite, rising from a

uate College and an additional dormitory to be built by several graduate classes. Two new club-houses are about completed and a group of ten houses for members of the faculty. Ten more faculty houses are under construction.

HOLLOW BLOCK WALLS WITH OUTSIDE VENEER OF BRICKS.

A SUBSCRIBER writes as follows: "I have built for myself a small house in which I have used hollow terra-cotta building blocks for the walls with a veneer of brick on the outside,—all of the partitions and the foundation being of hollow blocks. It is two stories and attic above basement. I have had no difficulty in keeping it warm in winter



DETAIL BY J. WARNER ALLEN, ARCHITECT.
South Amboy Terra Cotta Co., Makers.

plaza, which has the impressive dimensions of an 18-foot diameter at base and 14 feet at the necking and a height of 150 feet. At the top a platform 20 feet square constituting an abacus will support a bronze urn 28 feet high. The shaft is pierced by a well 9 feet in diameter containing a stairway and elevator. The bones of the prison-ship martyrs will be contained in brick vaults under the monument.

The National Society of the Fine Arts, the Washington Architectural Club and the Washington Chapter, A. I. A., invite competitive plans for the arrangement of stands for spectators on the route of the inaugural procession. Three prizes are offered: First, \$300; second and third, \$100, each. The amount of these prizes will be increased if the funds available permit. The following will act as a jury: J. R. Marshall, T. J. D. Fuller, Frederick D. Owen, Frank D. Millet, John B. Larnier. Further particulars may be had if desired by addressing Percy Ash, Secretary, Washington Chapter, A. I. A.

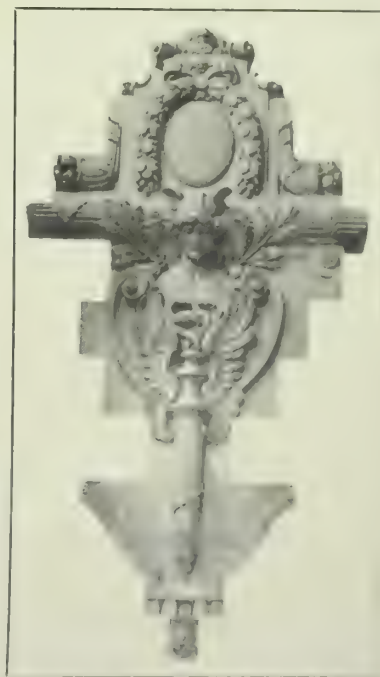
At the annual meeting of the Washington Architectural Club held June 6 the following officers were elected: Hector McAllister, President; Leo J. Weissenborn, Vice-President; Charles S. Salin, Secretary; Daniel J. Lix, Treasurer; Louis A. Simon, Francis B. Wheaton, Waddy B. Wood, Directors.

The well-known group of dormitories of the University of Pennsylvania is to be enlarged by means of a gift from an unknown donor, increasing the capacity of the buildings to eight hundred students.

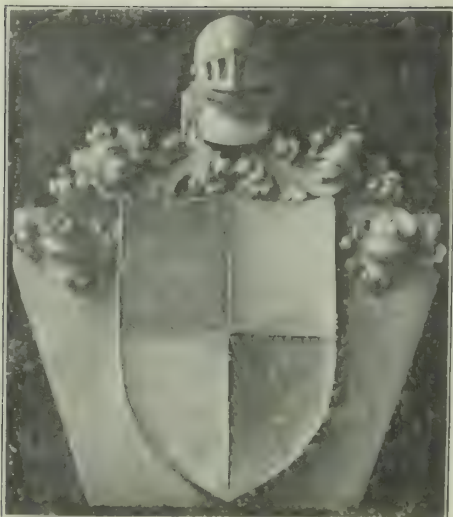
The Rockefeller Institute at Sixty-sixth Street

and the East River, New York City, has received an additional \$500,000 from its founder, which sum will be used for the erection of a new building near the present institute.

On May 23 the Hanna Monument was unveiled at Cleveland. It is the work of the late Augustus St. Gaudens and is supported by a pedestal designed by Henry Bacon.



DETAIL BY HERMAN MILLER, ARCHITECT.
Conkling Armstrong Terra Cotta Co., Makers.



DETAILS BY L. A. GOLDSTONE, ARCHITECT.
New Jersey Terra Cotta Co., Makers.

Robert Bickel, architect, and C. I. Auten, civil engineer, have opened an office as Architects and Engineers in Loyal Guard Building, Flint, Mich. Manufacturers' catalogues and samples desired.

Anthony J. Blix, architect, formerly of St. Cloud, Minn., has opened an office in the Temple Court, Minneapolis.

Parker Fiske, of Fiske & Co., New York and Boston, a graduate of the Massachusetts Institute of Technology, is an enthusiastic student of the best brick architecture found in this country and abroad. As a result of his study of color and texture effects, which may be obtained and which have been obtained by an intelligent and artistic use of materials, his company will issue a series of booklets, some of them illustrated, dealing with face brickwork. The first two of these booklets, one entitled "Fashions in Face Bricks" and the other "Some Good Brickwork," have just come to hand and we are glad to commend them as well worth study.

The terra cotta used in the Academy of Music, Brooklyn, Herts & Talent, architects, mentioned in Mr. Plusch's article which appears in another column of this issue, was furnished by the Atlantic Terra Cotta Company.

The Grueby Faience Company is now engaged in enlarging its plant and bringing it up to date in all respects to better meet the increasing demand for architectural faience. Karl Langenbeck, one of the leading chemists in ceramics in this country, has been engaged as superintendent for the enlarged plant.

The architectural terra-cotta (polychrome) used in the Bronx Church House, Bosworth & Holden, architects, illustrated in the plate form of this issue, was furnished by the Atlantic Terra Cotta Company.

NEW BOOKS.

ARCHITECTURAL COMPOSITION. By John Beverley Robinson. An attempt to order and phrase ideas which hitherto have been only felt by the instinctive taste of designers. Illustrated by eighty-eight half-tone engravings and eighty-five line drawings. New York: D. Van Nostrand Company. Price, \$2.50.

The Northwestern University has received a gift of \$150,000 for a gymnasium building.

T. Wendell Bailey, architect, has opened an office in the American Express Building, Oklahoma City, Okla. Manufacturers' catalogues and samples desired.

KIDDER'S ARCHITECTS' AND BUILDERS' POCKET-BOOK. Fifteenth edition revised. Illustrated with one thousand engravings mostly from original designs. New York: John Wiley & Sons. Price, \$5.00.

DECORATION OF METAL, WOOD, GLASS, ETC. Edited by H. C. Standage. A book for manufacturers, mechanics, painters, decorators and all workmen in the fancy trades. New York: John Wiley & Sons. Price, \$2.00.

THE COMMUTER'S GARDEN RECORD. Compiled and designed by Amy Carol Rand. New York: H. M. Caldwell Company.

BUNGALOWS, CAMPS AND MOUNTAIN HOUSES. Elaborately illustrated and accompanied by full descriptive text. New York: William T. Comstock. Price, \$2.00.

THE ARCHITECTURAL ANNUAL.

This work provides a means for the intercourse of professional ideas by word and illustration of men who make the Architectural League of America what it is, and to acquaint those widely separated members more closely with the opinions of their contemporaries and the product of their skill. A large portion of the edition having been subscribed for by the members of the League, the committee announce that the remaining volumes may be obtained from M. A. Vinson, 205 Caxton Building, Cleveland. Price, \$2.00.



DETAIL FOR CAFÉ.
G. A. Mueller, Architect.
Made by Brick Terra Cotta
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The changes in this edition consist of the correction of all typographical errors reported to the publishers, and the rewriting of Chapters XXIII and XXIV. This work has been done by Rudolph P. Miller. Professor Alvah H. Sabin has also brought the section on Paints and Varnishes up to date.

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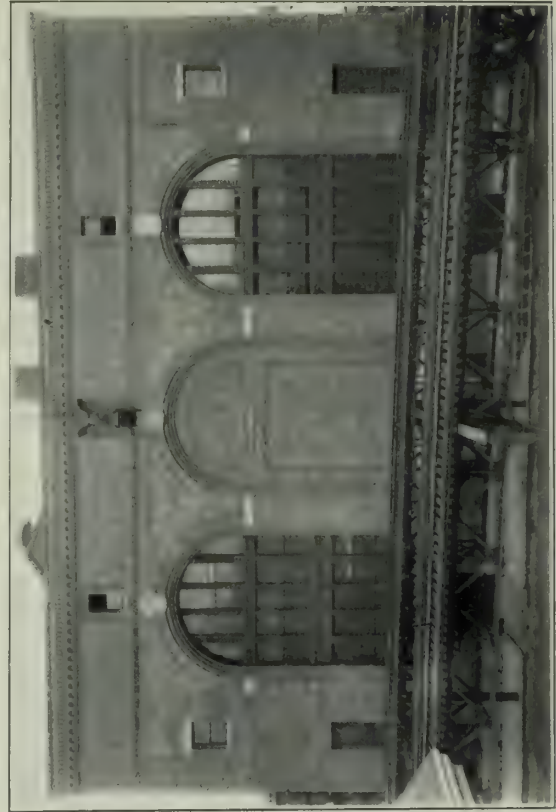
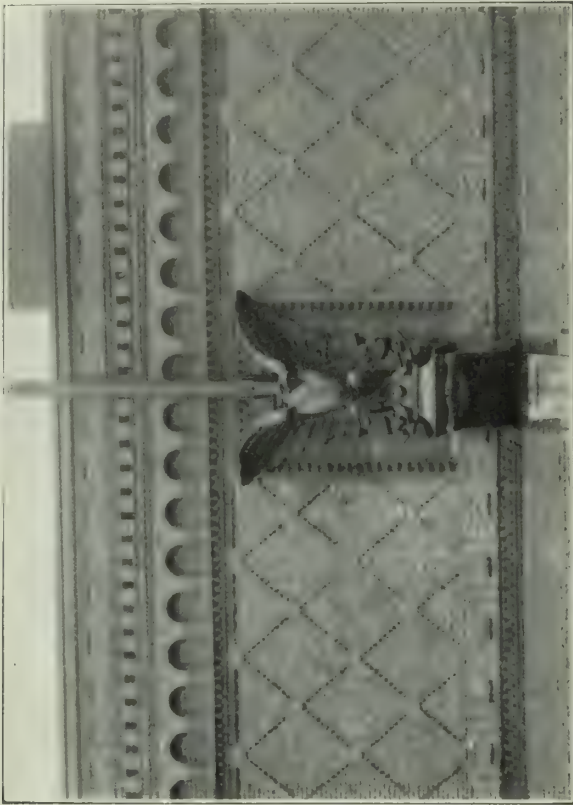
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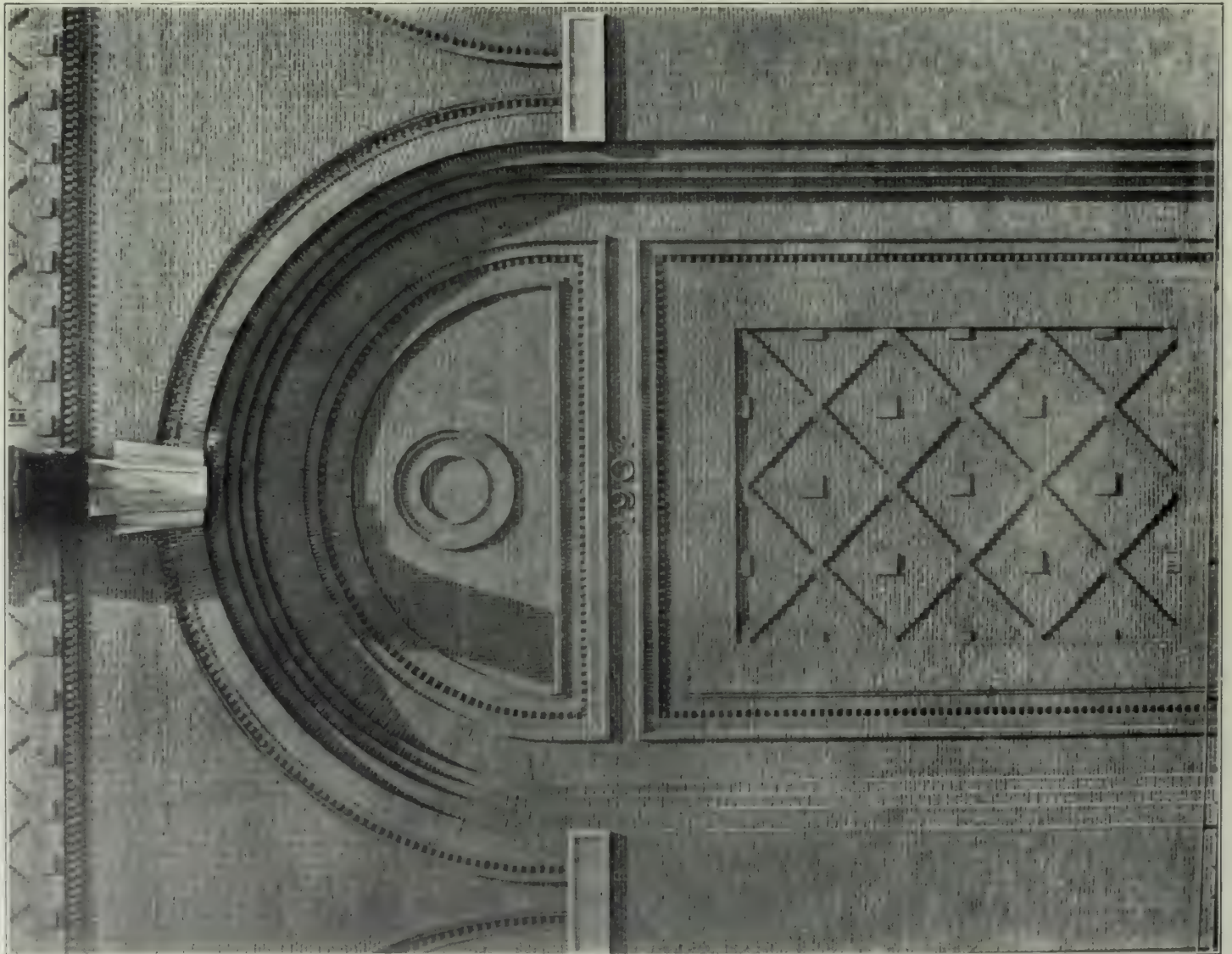
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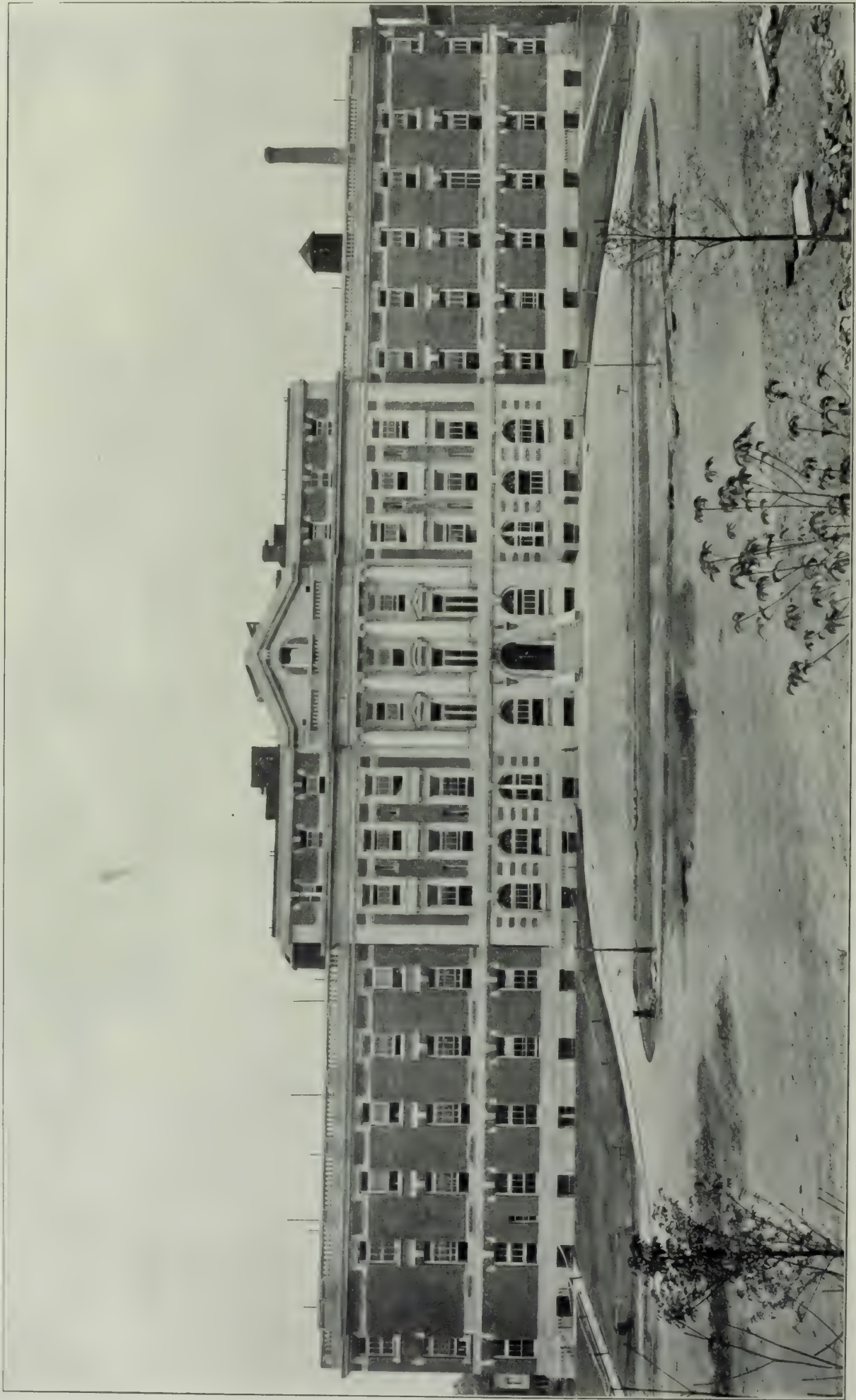
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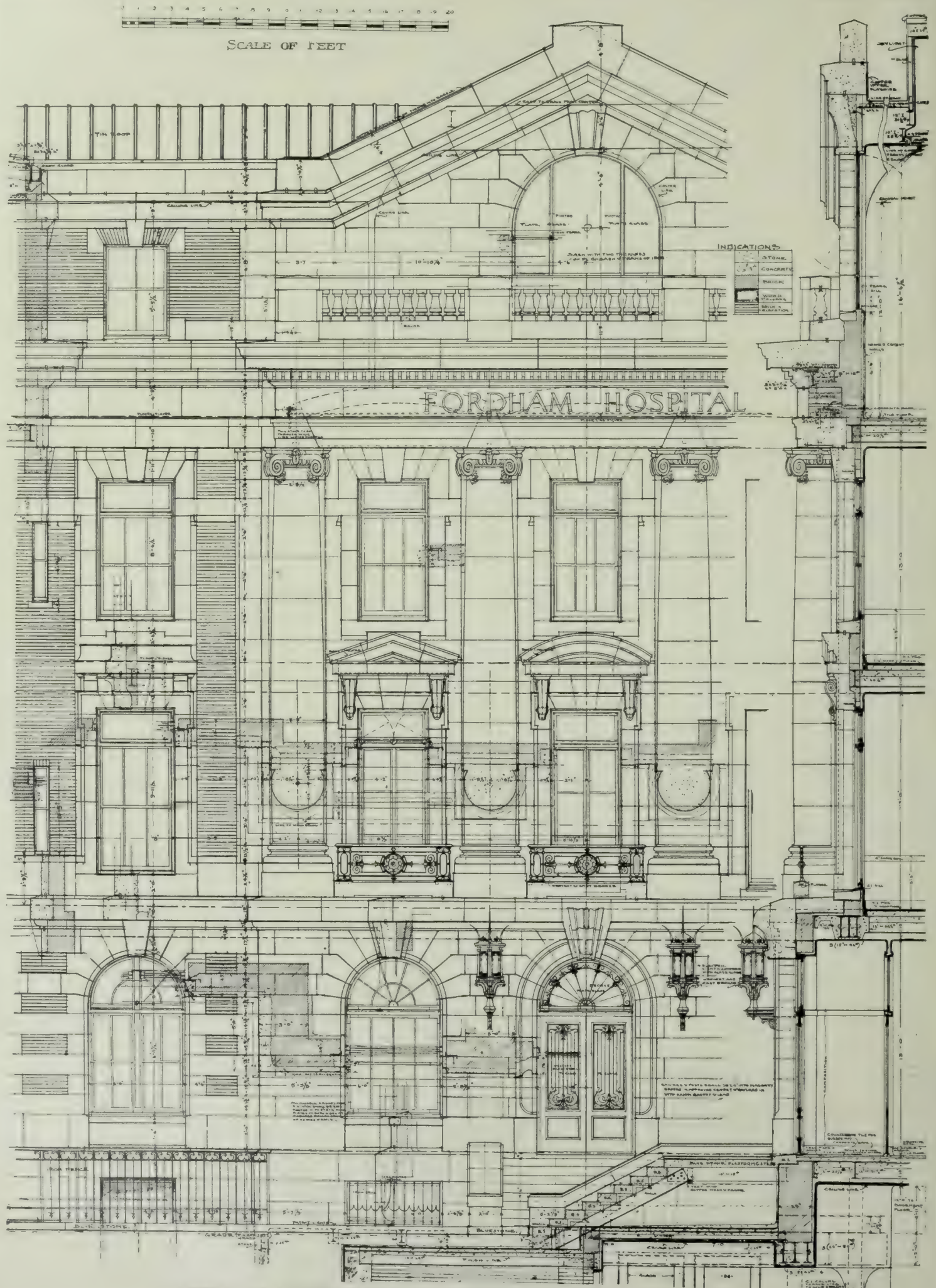
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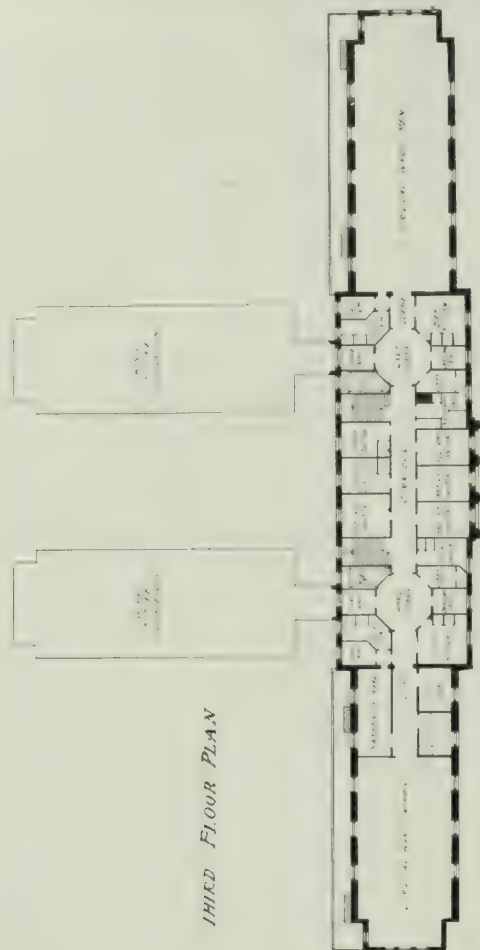


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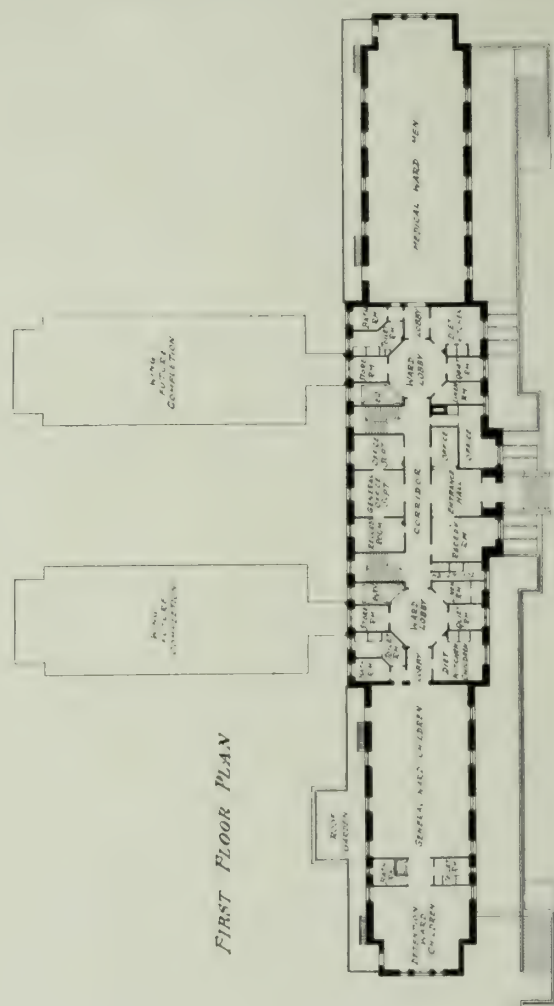




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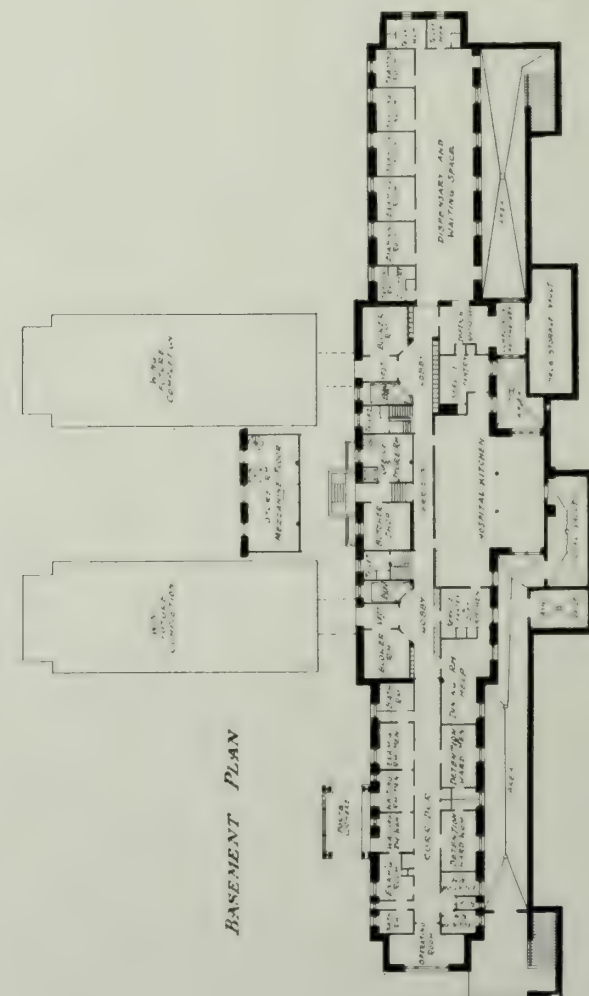
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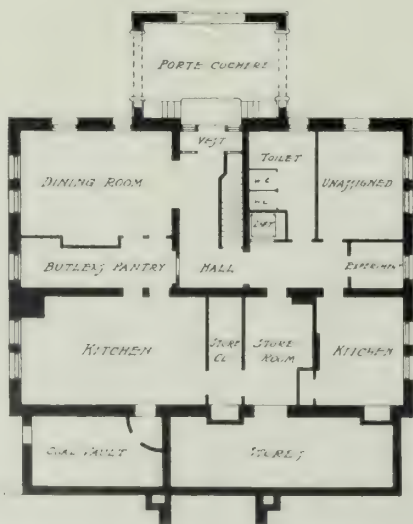
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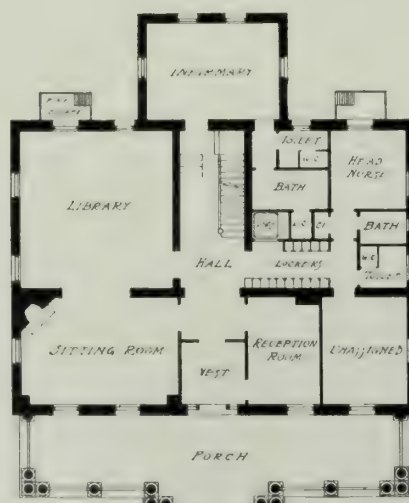


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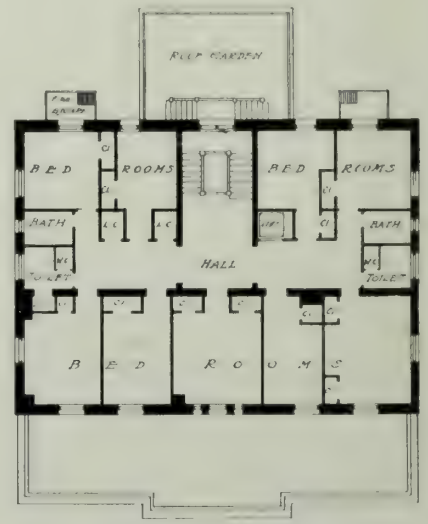
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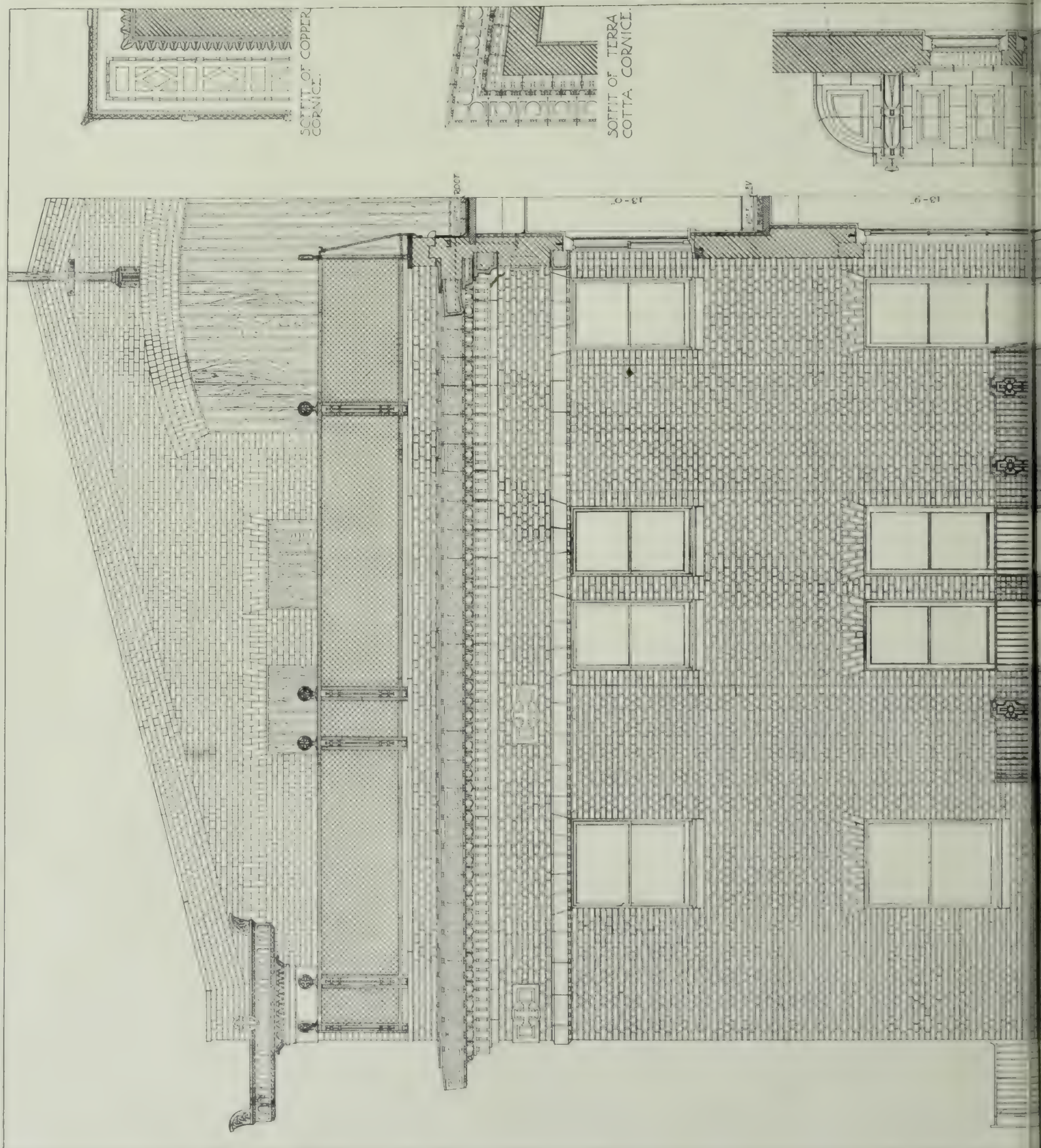


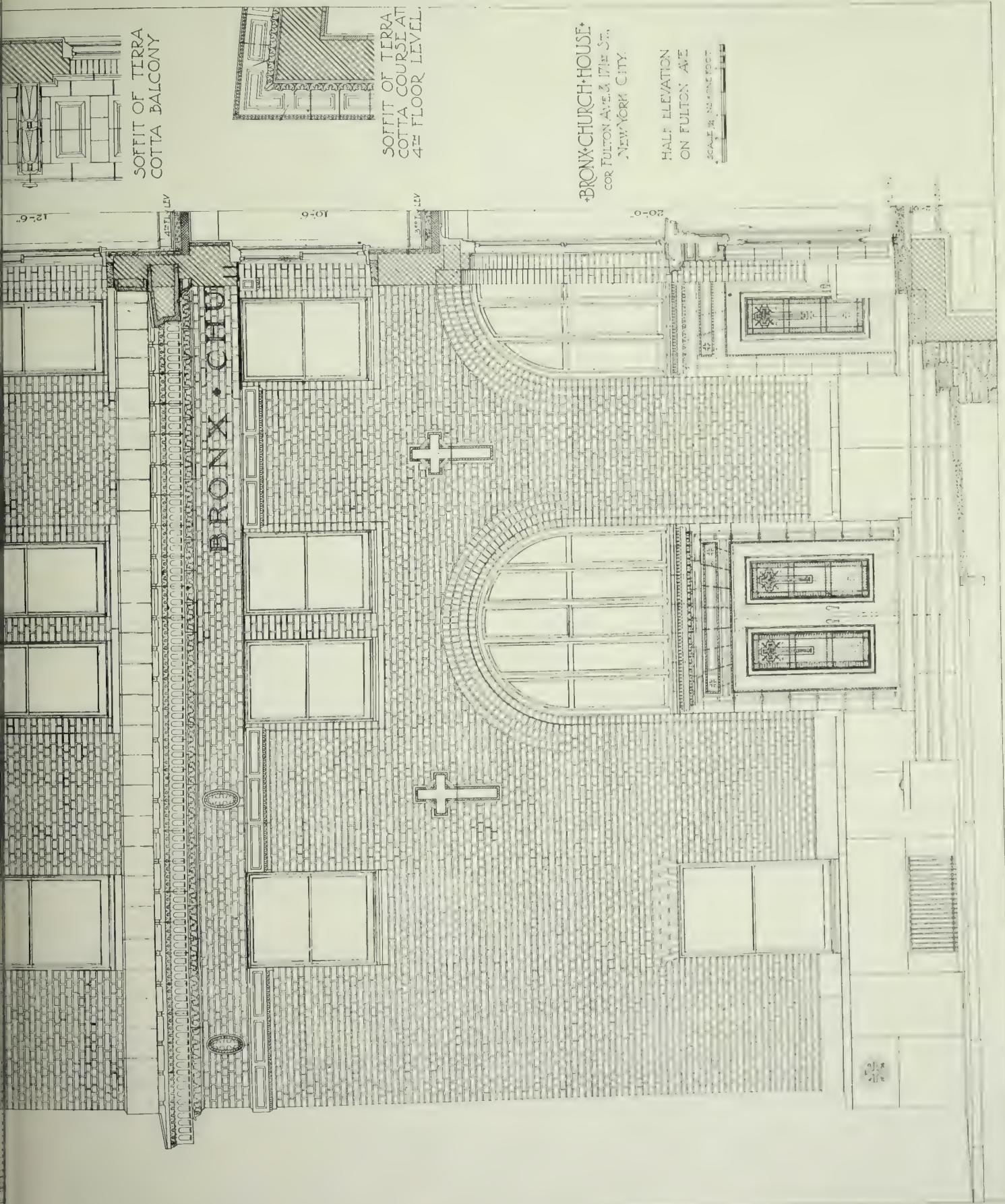
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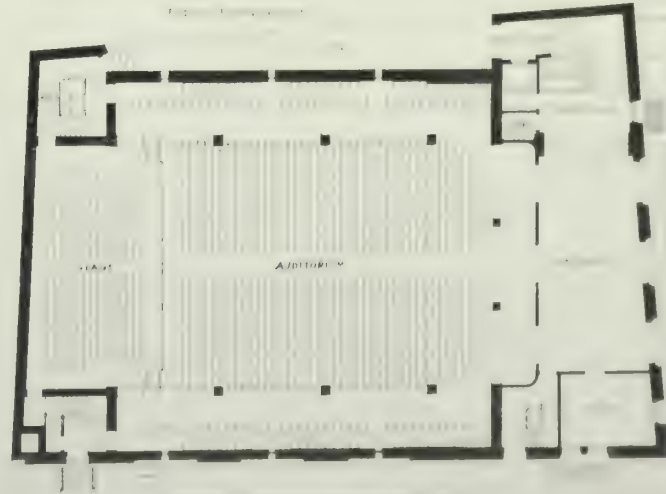
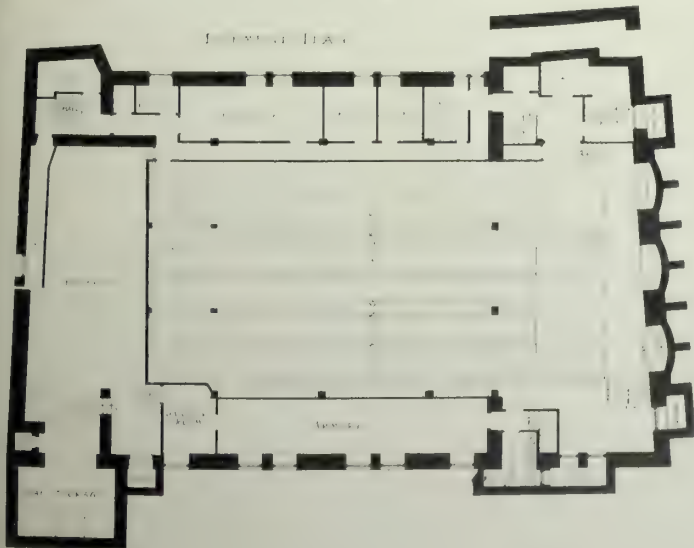
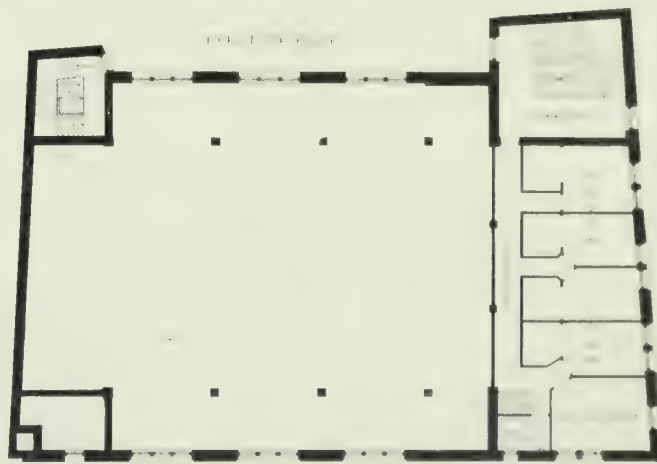
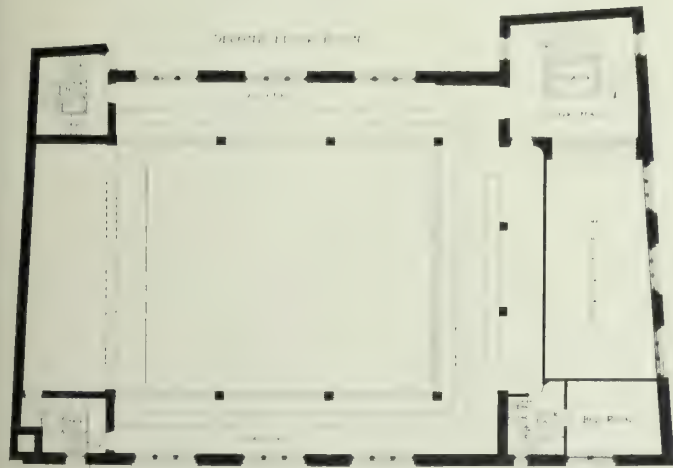
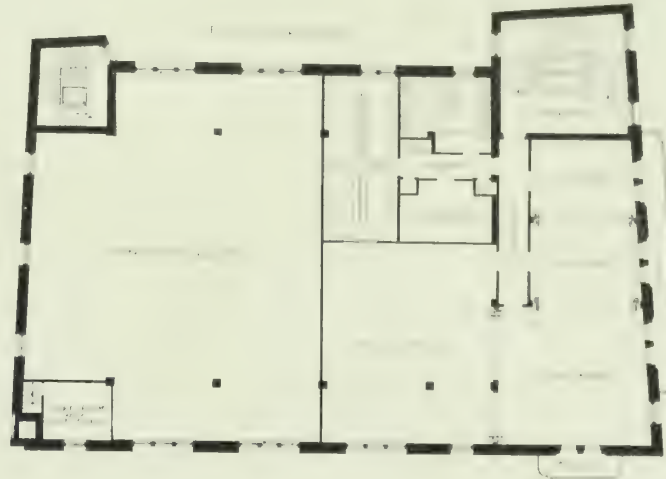
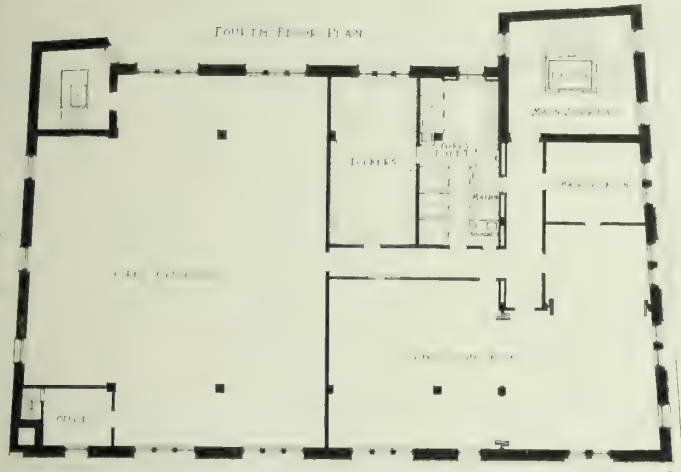
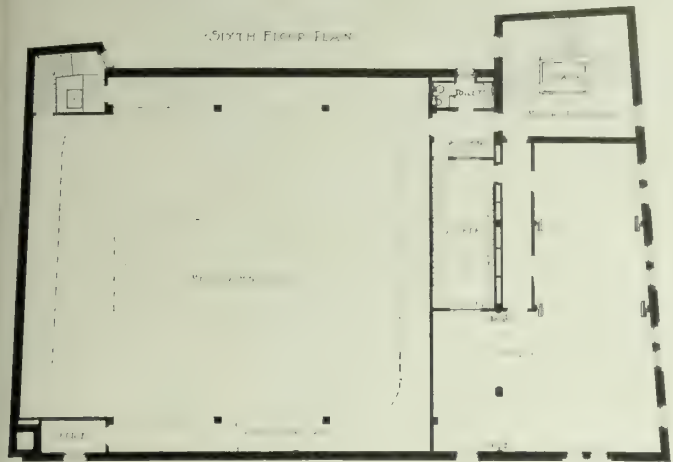
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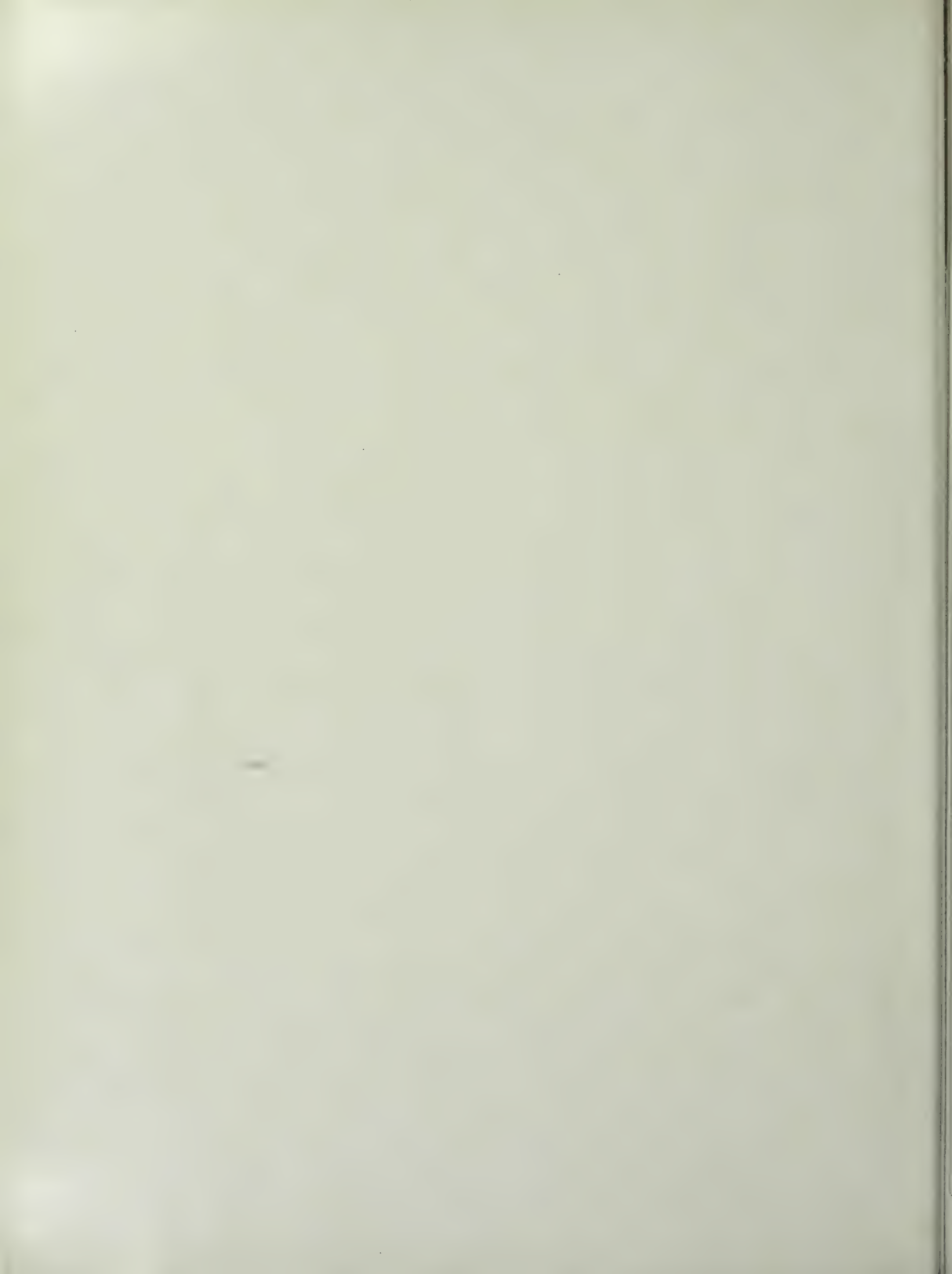


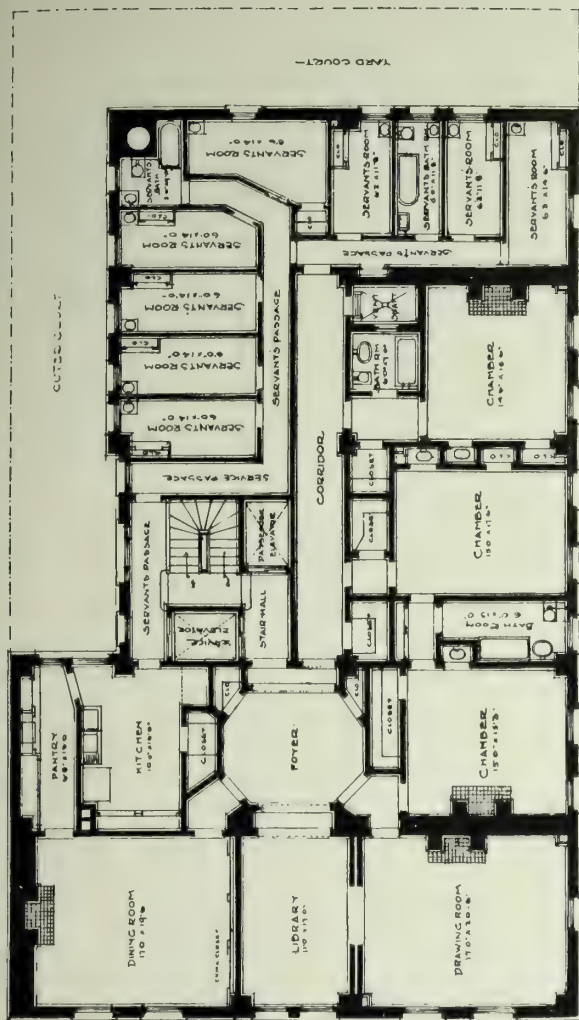
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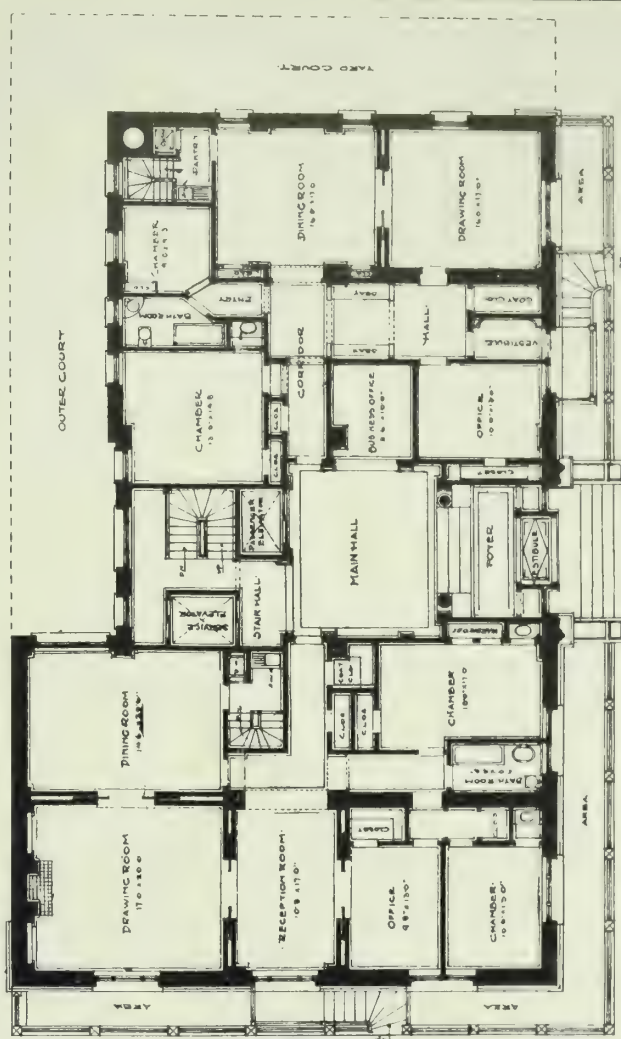


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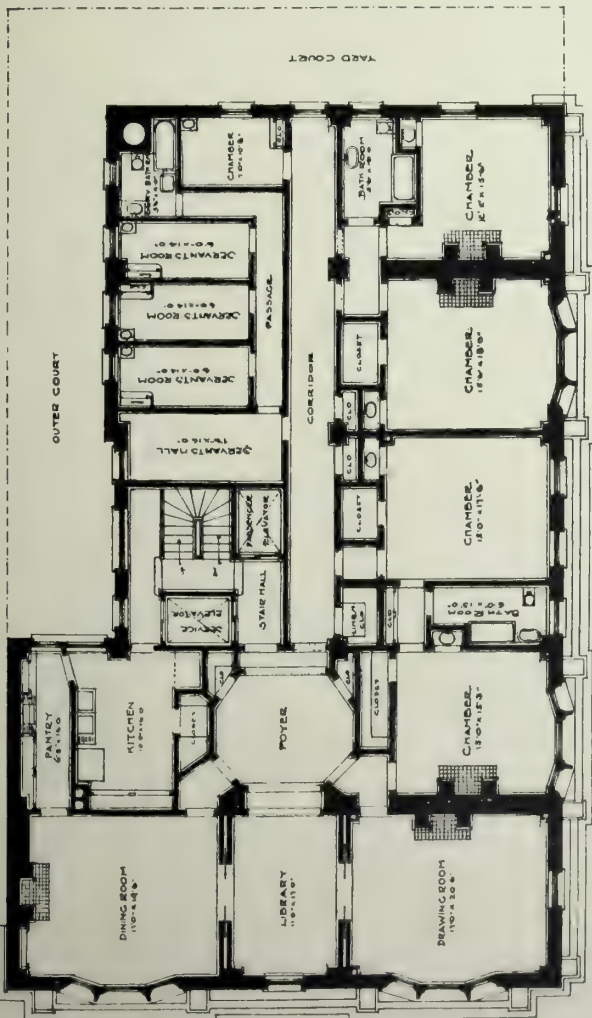




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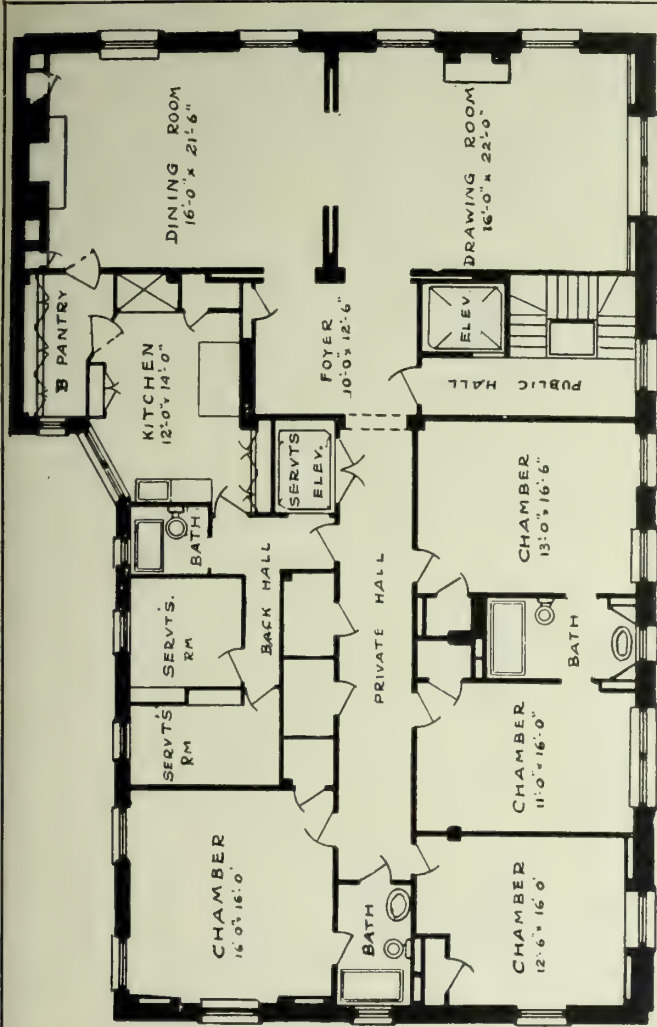


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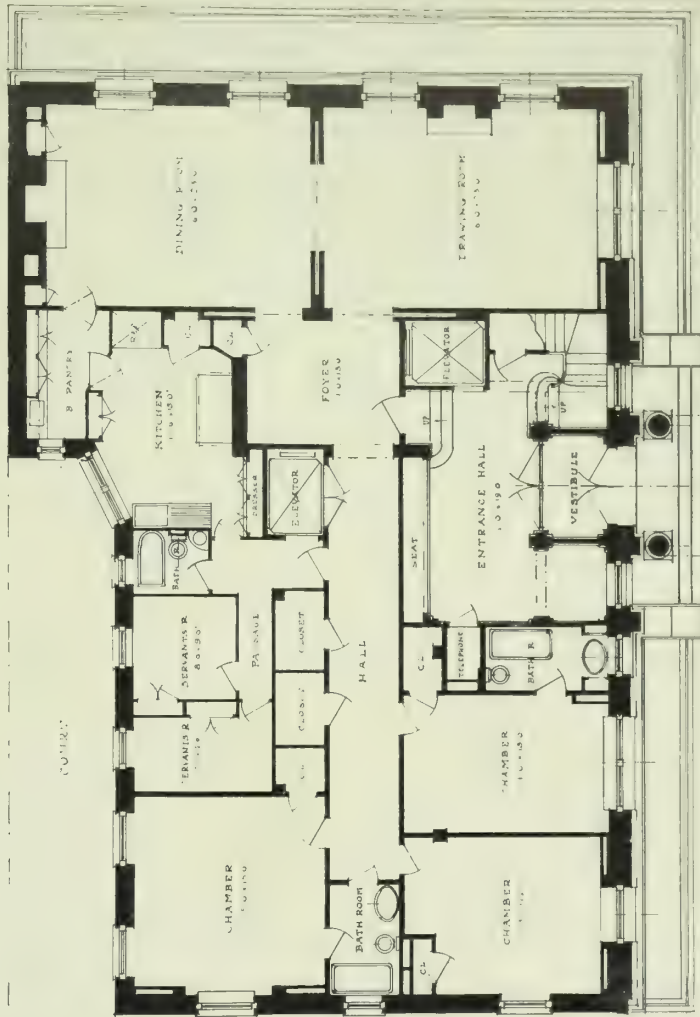


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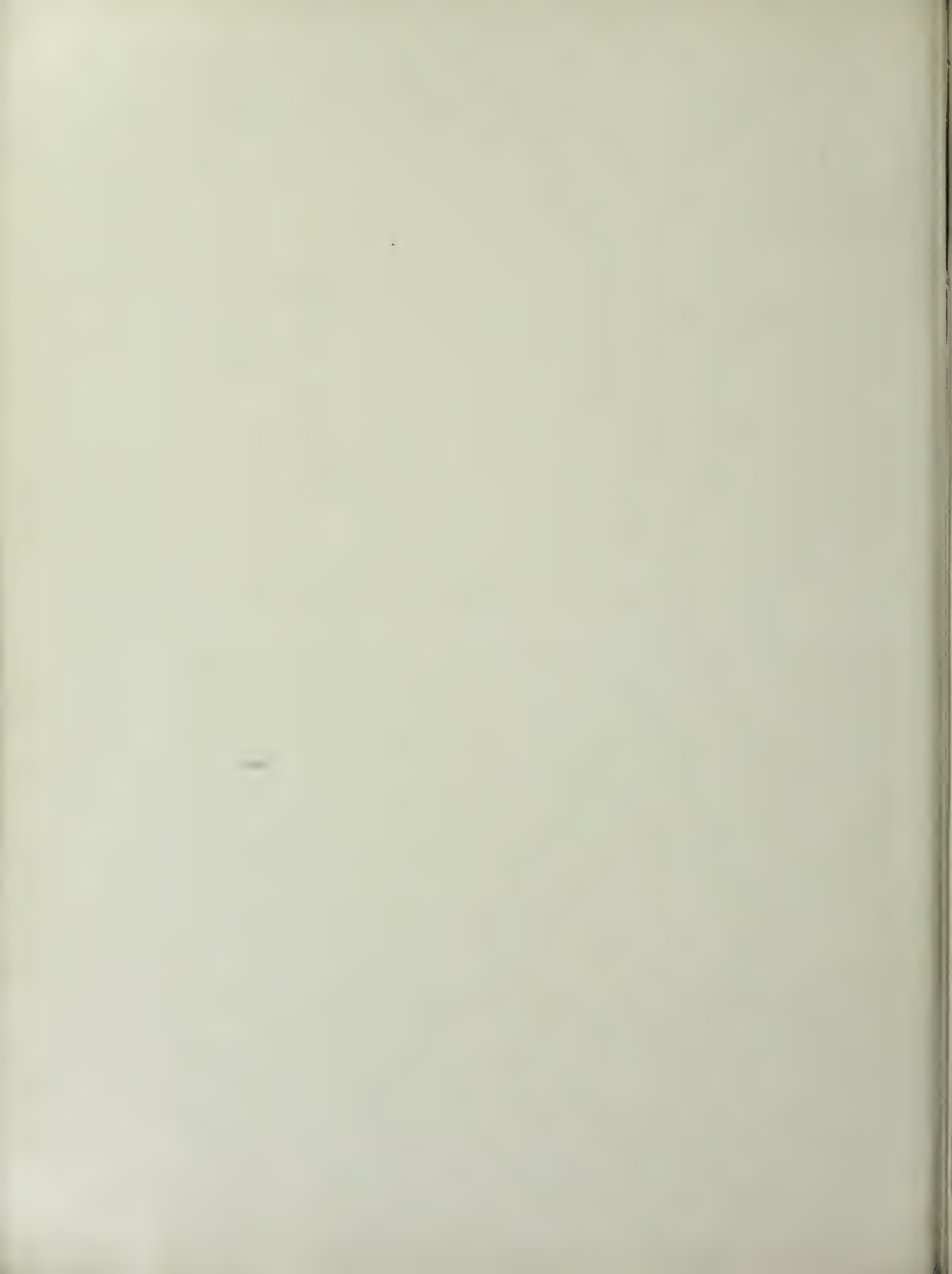
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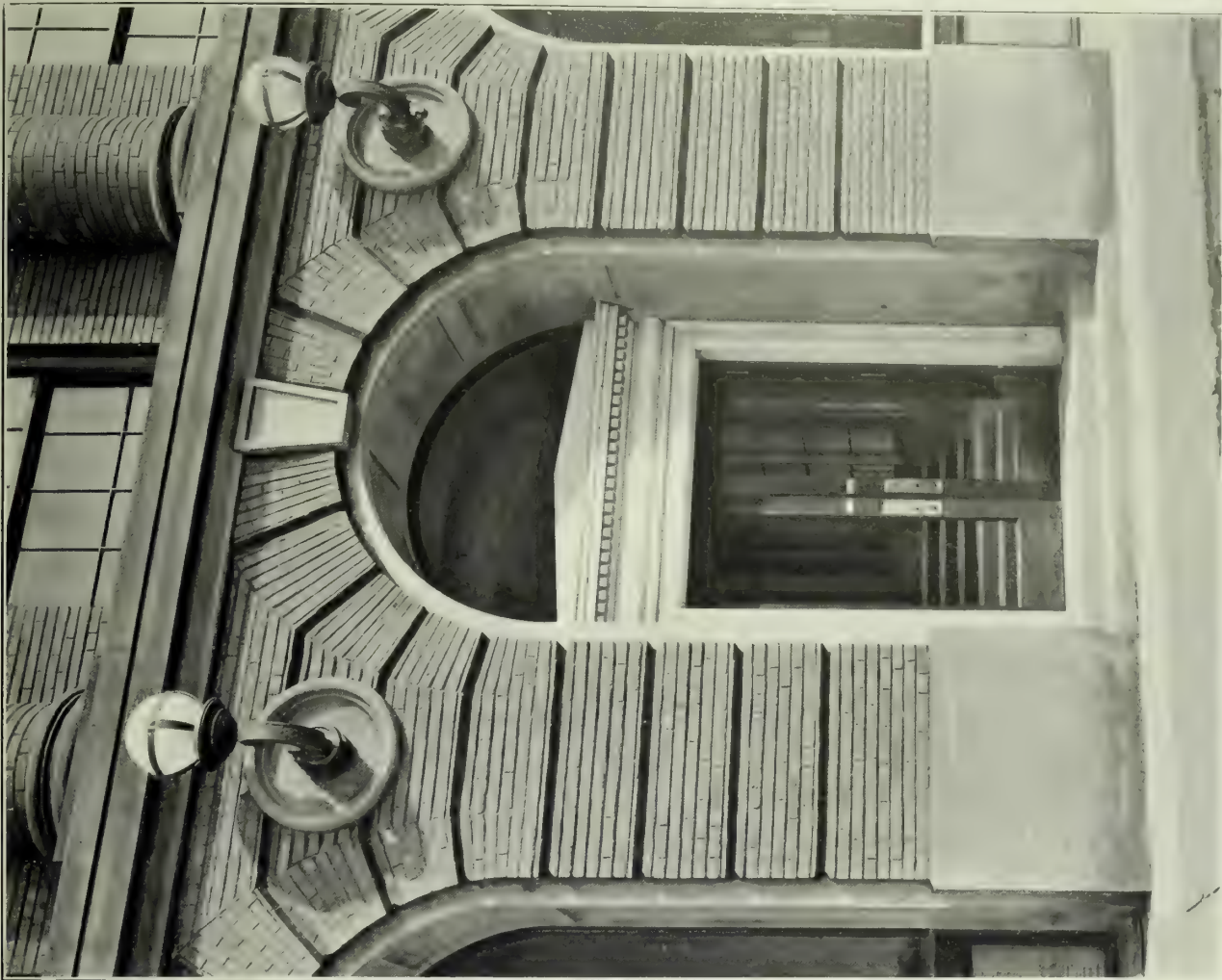


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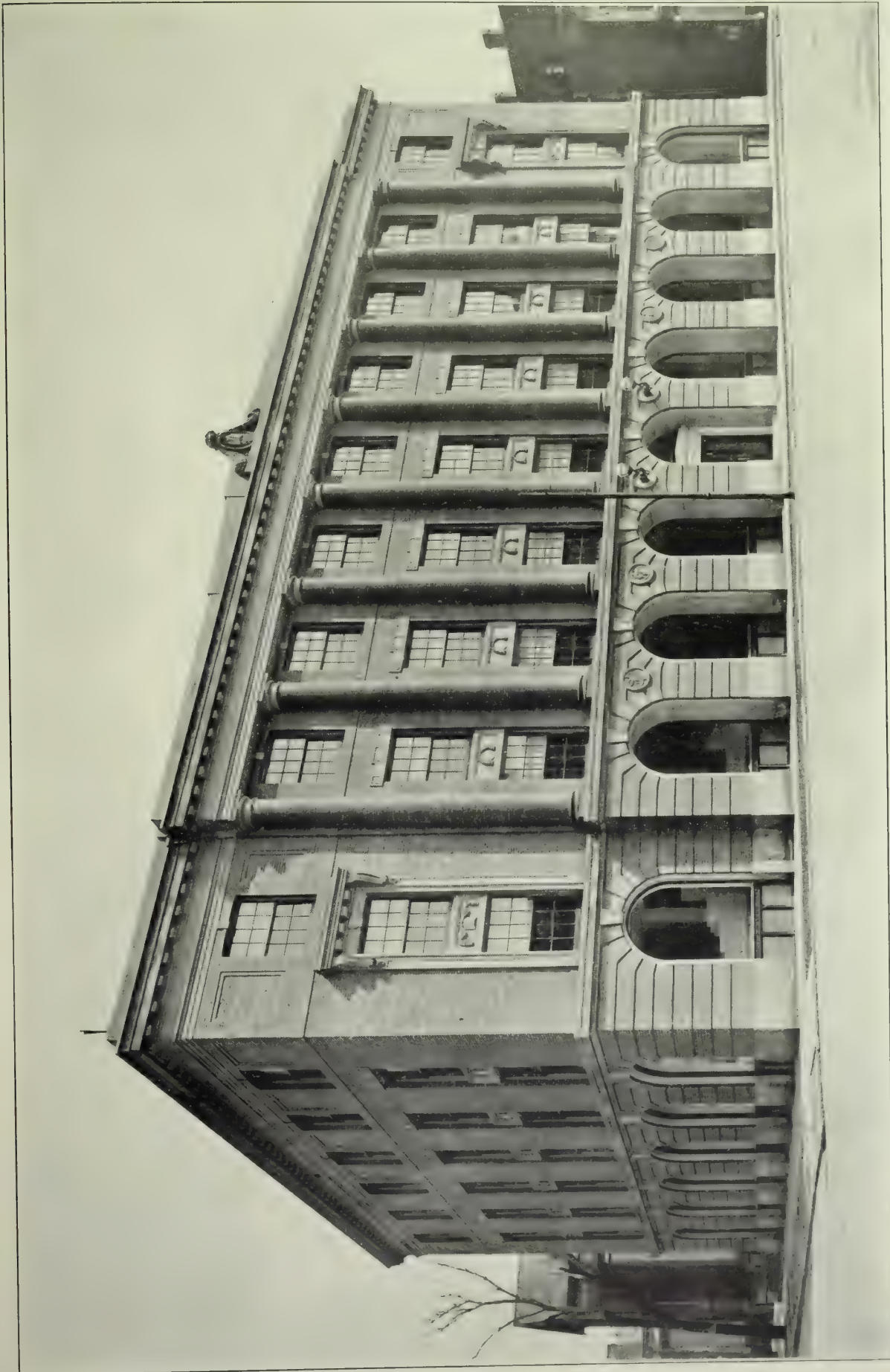
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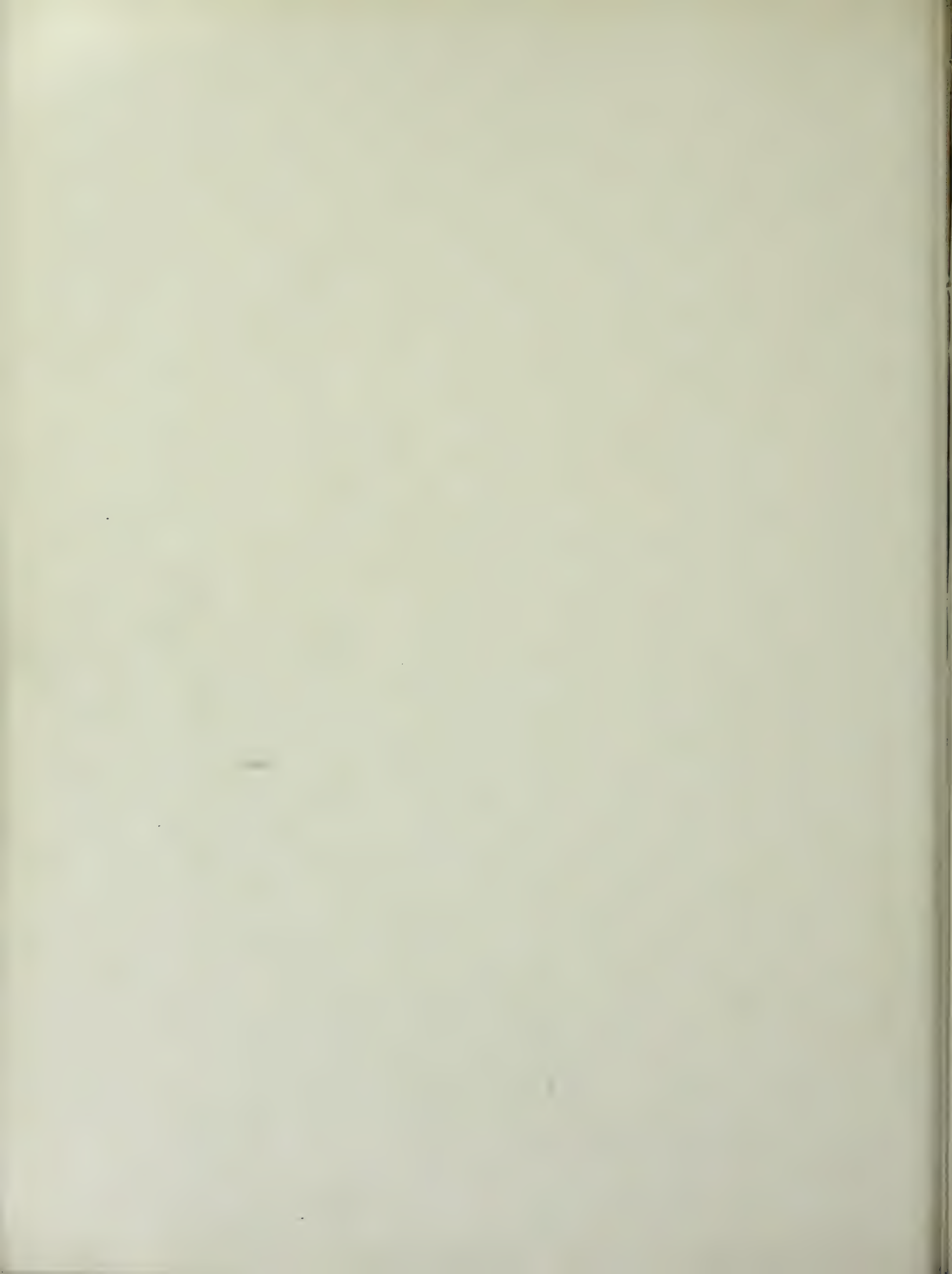


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VOLUME XVII

JULY 1908

NUMBER 7

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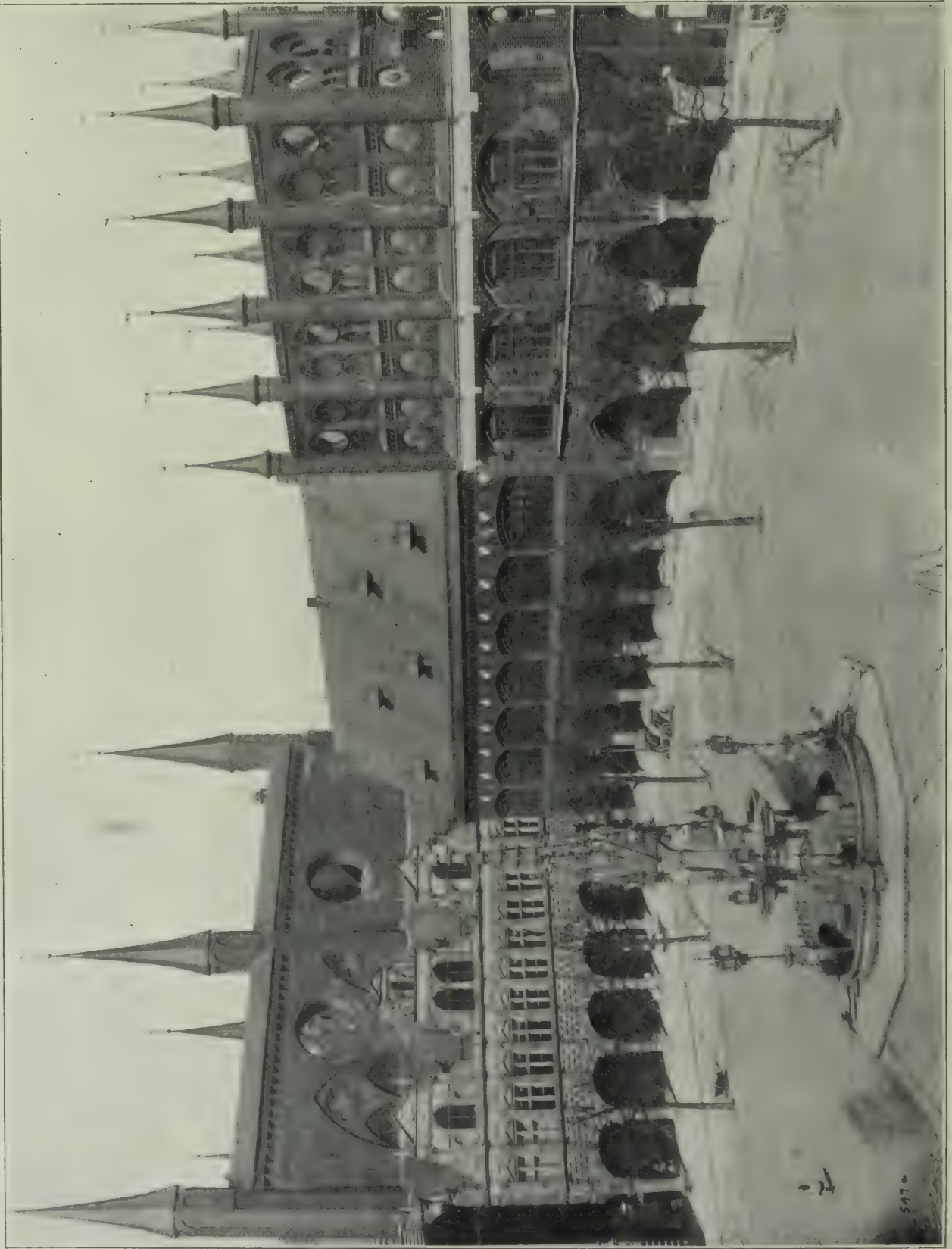
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TOWN HALL, FROM THE COURT, LÜBECK, GERMANY.

THE BRICKVILDER

VOL. 17 NO. 7

DEVOTED TO THE INTERESTS OF ARCHITECTURE IN MATERIALS OF CLAY

JULY 1908

The American Theater — VIII.

THEATER LIGHTING.

BY CLARENCE H. BLACKALL.

THEATER lighting as understood to-day, and especially as elaborated in this country, is practically a development of the last twenty years, and the possibilities of the electric light have been utilized in such manner as to completely change many of the effects, both in the house and on the stage. In the old days the term "theatrical" was synonymous with something cheap and tawdry, but the electric light, with its flood of illumination, makes it no longer possible to use silicia in place of satin, or jute in place of velvet, and in our best theaters the workmanship and the materials must now be of the best. And our houses demand a degree of illumination far beyond anything which was conceivable with gas, while, at the same time, anything like a glare in the eyes of the auditors must be studiously avoided. Theater lighting is really a specialized science as well as an art, which offers all sorts of fascinating possibilities. The demand seems to be constantly increasing for more lamps, more illumination; and where, a few years ago, lamps of small candle power were used by the hundred, we now use high candle-power lamps by the thousand. It is true, in a measure, that the amount of light is often in inverse proportion to the moral standard of the theater, but every playhouse calls for, at least, a brilliantly illuminated entrance and foyer. Indeed, the whole exterior of a theater should be so designed as to

appear at its best at night. The Lyceum Theater, New York, is an excellent example of what can be accomplished in this direction, and in a different way, the Illinois Theater, Chicago, is very effective. The problem of exterior design is complicated by the business necessity for electric signs, which must be large and of striking appearance, and

must stand out at an angle from the front of the building so as to catch the eye from a distance. These signs are often combined with the canopy over the entrance, and they can hardly be too brilliantly lighted; a thousand lights are none too much for a large canopy and sign, in addition to half a dozen flaming arcs. The manager will always urge the architect to be lavish with lights at the entrance, for that is where it pays.

For the auditorium itself opinions differ. Some prefer a subdued effect with all the lamps shrouded by rich stained glass, as in the Stuyvesant Theater, New York, where there is hardly light enough to see to read the programmes, and faces cannot be

distinguished across the hall, but most theater goers seem to prefer the cheerful brightness of the Keith houses, the Hippodrome at Cleveland, or the Lyric, New York. But on one point the American public is pretty well agreed: there must be no central chandelier to blind the eyes of balcony and gallery, and the attempt is always made to so-distribute the lights as to give equal illumination every-



LYCEUM THEATER, NEW YORK — AT NIGHT.



CEILING LIGHTS, COLONIAL THEATER, BOSTON.

where, and to kill all shadows. Manifestly, this is not the most artistic treatment but it is what goes.

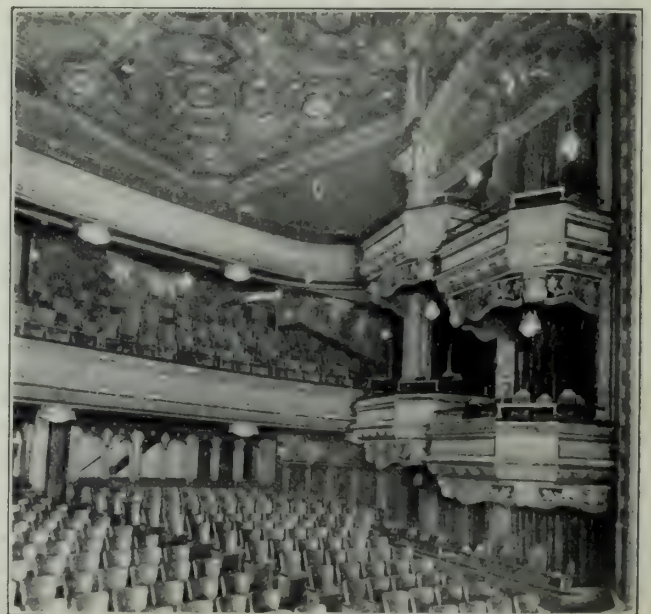
Even with this handicap, however, monotony can be avoided, in a measure, by using the varieties of color afforded by electricity. In this respect we have much to learn from abroad. The former Eden Theater, in Paris, had strong amber incandescents throughout the house proper, white arc lights in the corridors and circulations, and ordinary incandescents in the foyer, producing a very interesting variety of effect. In the King's Way Theater, London, the wall lights are all enclosed in shades of a tender old-rose tone, while the lights on the ceiling are screened from below by strong amber opal glass. As a general rule, all electric bulbs should be screened in some way, either by ground glass or by an envelope of colored glass or stuff. Shades of the Holophane prismatic type are admirable in some cases, giving a diffused brilliancy without the slightest glare, which is very satisfactory. The ceiling globes of the Colonial Theater, Boston, are of this type, likewise the discs enclosing the lights on proscenium moldings of the Majestic Theater, Boston. Only rarely can arcs be used for interiors. The great Albert Hall in London has a splendid illumination from eight flaming arcs hung from the top of the dome, which fill the whole vast interior with a trembling, golden blaze, but the ordinary theater is too small for such intensity. The Cooper Hewitt mercury vapor lamp also offers some most fascinating possibilities, which have thus far never been utilized.

The outside display and sign lights and all of the lights in foyers, lobbies and stairs are best controlled from a switchboard near or in the manager's or the ticket office. All the lights in the house proper are controlled from the stage switchboard, and in the best houses are connected through a dimmer by which they can be turned up or down. The amount of light required is entirely a matter of judgment and is radically modified by many

factors such as the tones of the decoration, the character of the fixtures and the arrangement of the lights, but in a general way an allowance of 0.02 candle power per cubic foot, fairly well distributed, is a safe minimum. There should be a preponderance of light at the back of the house rather than at the front, and more light on the walls than on the ceiling, and the lights of the proscenium and the box fronts are best concealed or at least carefully shrouded.

A few special points have to be borne in mind in planning the electric work for a theater. All the exits are usually required by law to be marked by an illuminated sign. The lights for these signs should be on an independent circuit, not controlled by any switchboard. An improvement would be to fit these lights with some form of simple storage battery which would be charged through a bypass while the plant or the main supply is in operation, and would come into operation only when the main source of supply is cut off, thus giving illumination for a period of an hour or two, amply sufficient to allow the escape of an audience in emergency. The same system could to advantage also be applied to furnish some slight illumination for the exit corridors. A modification of this system has been applied to the New Amsterdam Theater in New York. Then there should, in addition, be installed on the main switchboard a safety switch which is thrown into operation by the pressure of a push button at any one of several points throughout the house, so that in an emergency an usher or the manager in the foyer can instantly throw on the lights in the auditorium. Such a switch is inexpensive and is positive in action, but is required, unfortunately, in only a few cities.

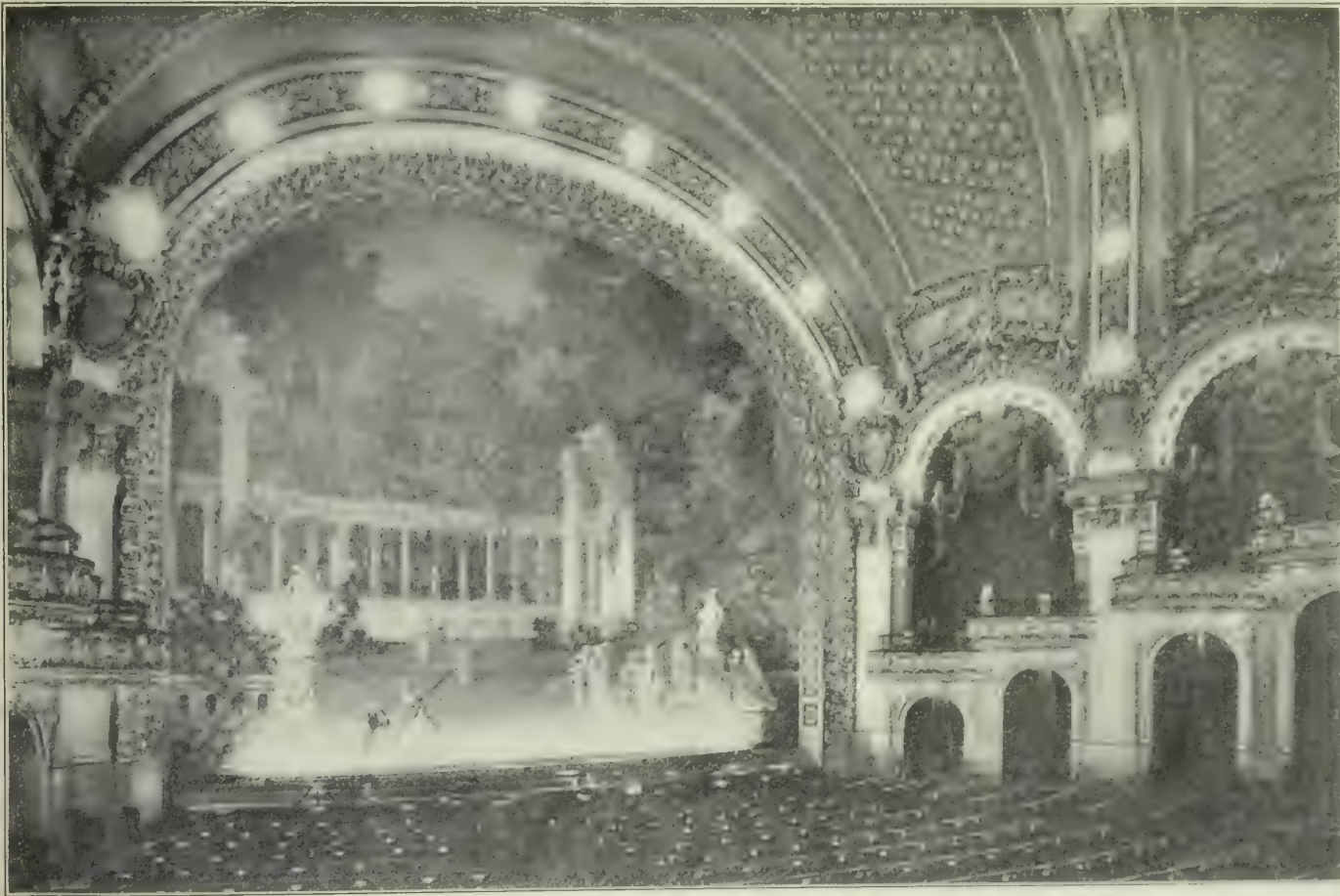
The stage lighting of the time of Shakespeare was limited to a few candles set along the front of the stage. The stage lighting to-day is one of the most intricate and sensitively organized functions of the theater. The stage electrician is a more important man than the stage carpenter to-day and far more depends upon him. The introduction of electricity has profoundly modified our ideas of illumination, but the end is not yet. We still cling to

STUYVESANT THEATER, NEW YORK.
Showing Interior Lighting

the intensely artificial scheme of footlights, which distorts every natural shadow on the human face, falsifies the effect of all the features and absolutely demands the intensive and unnatural coloring which we have come to associate with a theatrical makeup. A few attempts have been made to illuminate the stage from the front or from the sides in a more natural manner. Spot lights, overhead illumination have tried to give a more natural aspect to the human face. But the difficulty of successfully illuminating the stage from the front, while at the same time keeping the house in semi-darkness, is a very obvious one, and above all, the reluctance of the theatrical profession to accept so glaring an innovation as the omission of footlights and the diminution of grease

These lamps, by the way, are usually colored by a stain applied to the outside of the glass, there being a practical difficulty in obtaining bulbs colored in the glass of uniform tone at a reasonable cost. This stain has to be renewed at frequent intervals and is a troublesome feature of stage lighting.

The depth of the stage from the curtain line towards the back of the house is arbitrarily divided into spaces of about three and one-half feet called entrances, with a space of about a foot and a half left between each entrance. Over these intermediate spaces are rows of lights suspended from the gridiron in such manner that they can be raised or lowered, the cables supplying the wires being suspended either from the first fly gallery or,



MAJESTIC THEATER, BOSTON, SHOWING INTERIOR LIGHTING.

paint and powder will undoubtedly long stand in the way of a rational stage lighting.

In order to understand the system of stage lighting, reference must be had to a typical stage plan and section.

The footlights are carried across the front of the apron, the lamps being set at a slight angle, as shown by the detail. For a 40-foot curtain opening a good allowance would be to put in 48 white lights, or lamps with clear glass globes, 48 reds and 48 blues, making all the lamps of 32 candle power. The detail shows a typical construction of the footlight trough and hood, both of which are lined with tin and painted with white asbestos paint, this material giving a softer reflection than would be possible from a polished surface, besides being much easier on the actor's eyes. It is an excellent scheme to separate the lamps by partitions, so that the colors will not mix.

better, from the gridiron itself. These rows of lights are called borders, or border lights, and contain the same number of 32-candle-power lamps that are put in the footlights. The footlights, however, are arranged so as to leave a free space of not less than two feet at each end of the apron while the border lights are made the full width of the curtain opening. In some entrances the whole frame of the border is suspended in such manner that it can be tilted one way or the other so as to throw the reflections either straight to the rear or more downward. The inner surface of the reflector enclosing the border lights is painted with asbestos white paint.

Opposite each entrance and about five feet back from the line of the curtain there are arranged usually two floor pockets, into which connections can be plugged for either incandescent or arc lights. The incandescent lights



ILLINOIS THEATER, CHICAGO.
Showing Exterior Lighting.

are arranged in bunches of five 32-candle-power lamps about a circular reflecting disk and mounted on an adjustable extension iron standard with heavy base which can be moved about as desired. This is called a bunch light. The arc lights when used are enclosed in a box fitted with an adjustable lens or reflector after the manner of searchlights and are termed spot lights. For illuminating back drops additional light is sometimes required from the floor. This is obtained by plugging into one of the floor connections a cable leading to a row of lights arranged on a long strip of wood, this strip being placed on the floor with the lights up, and constituting what is known as a strip light. On the proscenium wall, each side of the curtain opening, there is a small gallery raised eight or ten feet above the stage level, in which are installed not less than two connections for spot lights. These are usually made at a capacity of fifty amperes each, and the reason for two connections is to allow for different colors being used at once. On each side of the curtain opening, on the face of the wall towards the stage, there will be a vertical row of twenty or thirty 32-candle-power lamps on a movable strip, constituting the proscenium lights or rows.

In some theaters the borders are furnished with four colors, white, blue, red and yellow. Also for special effects other colored lamps can be inserted in the sockets of either the borders or the bunch lights. It is usual also to provide for an independent circuit to the center of the gridiron and connected to a long flexible cable, to which can be attached a chandelier. Connections for fireplace or other local illumination are generally made to one of the floor plugs in an entrance.

Most of our theaters are now equipped for moving picture machine connections. There should be pro-

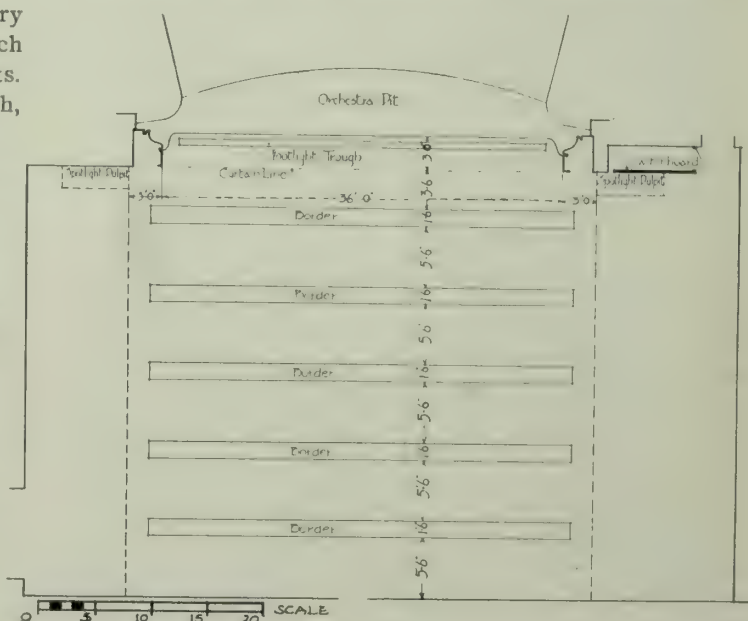
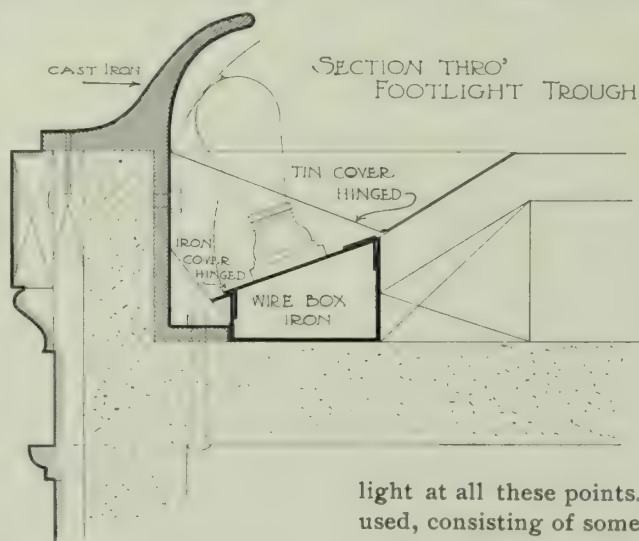
vided a circuit of not less than fifty amperes' capacity, carried to the rear of the balcony to a plug outlet.

It will be readily seen that an equipment of this sort calls for a total number of lights on the stage, reaching as high as ten thousand lamps in some cases, and necessitating a very heavy consumption of electric power. It will also be appreciated at once that the load would be a varying one, as the lights might be turned off and on in a twinkling, and a thousand amperes thrown off or on without any notice. A load of this description would be very trying to an isolated plant. Consequently, in nearly all of our city theaters the current is supplied by the Edison Company as being more regular and having a greater reserve under sudden exigency. The fluctuation in the amount of current required is shown by the annexed diagrams, the current being taken from readings during different plays.

The switchboard required to control all this electricity is necessarily quite complicated. Each color on the foots and borders is on two separate switches; there is a separate switch for the bunch lights and for

the arc lights on each side, and also for the spot lights on each side. It is customary, also, to control all of the lights of the auditorium from the stage switchboard, these lights being lowered just before the curtain is raised. All the switches must also be ganged together in such way that any group of lights in the house or in any part of the stage can be turned on or off simultaneously. Furthermore, it must be possible to control absolutely the intensity of the

light at all these points. For this purpose dimmers are used, consisting of some form of rheostat through which the current is turned, cutting down the efficiency of the lights and consequent illumination. These dimmers are



TYPICAL STAGE PLAN, FOR LIGHTING.

usually for a three-wire circuit, and the dimmers themselves have to be ganged together. In the best equipments there would be two separate dimmers for each border and for each color on each border, and for the foots as well. And these dimmers must be so arranged that one set can be turned up while the other is being turned down, and moved so carefully that there will be no sudden drop in the light. It is customary, also, to put all the house lights on a dimmer and drop them gradually, rather than turn them off abruptly.

The construction of stage switchboards is a specialty which is being constantly improved, and the best board to-day may be out of date in a very few years. There are at present several general types in use. Quite commonly, the dimmer contacts are all exposed on the face of the board, and jack-knife switches are used; but in the most up-to-date board nothing appears on the face of the panel except lever handles, which operate by rods and by gearings to control the dimmers and the switches, all of which are on the back of the board so as to show no sparking. A form of board has been devised in which the entire control is by a bank of push buttons, connected either electrically or pneumatically to the direct control of the switches and the rheostats. The latter board is the ideal one, as it is extremely compact, and can be operated with ease by a single person, but it has not yet been perfected in such manner that it can be depended upon.

As a precaution, all main circuits on the main switchboard should not only be fused but should be equipped with circuit breakers. And every board should be equipped with a volt meter, wired to use as a ground detector, and should also be fitted with a recording ammeter. Both of these devices would be pretty sure to save their own cost in less than one year by the stoppage of leaks and reduction of waste.

The switchboard is usually located on the back of the proscenium wall at one side of the curtain opening, the electrician standing in the line of the first entrance, where he can see the stage. He is obliged, of course, to depend largely upon cues in changing the lights and can not rightly judge of the stage effect. In the Metropolitan Opera House, New York, the first entrance is left entirely clear on each side, the switchboard being located in the basement under the center of the front of the stage.

The electrician has a stand in the center of the footlights, where a shallow screen a few inches high and hardly wider than one's head allows him a full view of all of the stage without his being visible to the audience. Right at his hand is a master wheel controlling the ganged levers of the dimmers, and the main switchboard is so near that he can speak to the two assistants who work the switches or individual dimmers as directed by him. This is an excellent arrangement in many ways but has the drawback of requiring the undivided attention of three men during the whole performance.

The switchboard of the Metropolitan Opera House is one of the largest in the country, controlling 11,488 16-candle-power lamps, besides motors, 44 arc pockets,

and 228 incandescent stage pockets; lamps and pockets distributed as follows:

4880—16 candle power lamps for auditorium illumination and entrances, halls, etc.

700—50 candle power whites in 8 borders, 1 foot and 2 proscenium lights.

468—32 candle power ambers in 8 borders, 1 foot and 2 proscenium lights.

468—32 candle power reds in 8 borders, 1 foot and 2 proscenium lights.

468—32 candle power blues in 8 borders, 1 foot and 2 proscenium lights.

150—32 candle power in transparent border light.

150—16 candle power in paint frame border light.

225—16 candle power in working lights on stage, in cellar and sub-cellar.

1025—16 candle power in dressing-rooms.

Sixteen quadruple stage pockets, for bunch lights (sixty-four pockets),

four colors, white, amber, red and blue, 15 ampere capacity each.

Sixteen quadruple stage pockets, for transparencies (sixty-four pockets), four colors, white, amber, red and blue, 15 ampere capacity each.

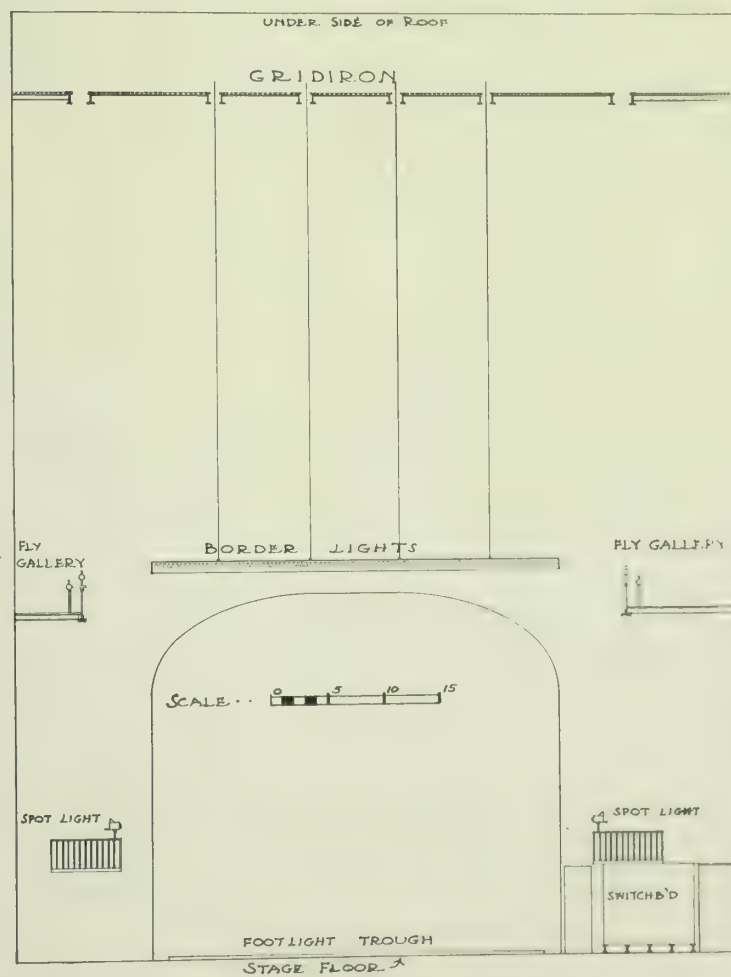
Sixteen single stage pockets, for arc lights on stage, 30 ampere capacity each.

Six single auto pockets, three for each bridge, for arc lights, 30 ampere capacity each.

Twenty-two single auto pockets, for arc lights, in fly floor, 30 ampere capacity each.

One hundred single stage pockets, for musicians' stands.

Switches are so arranged that almost any combinations of light and shade can be made and any gradation of tone



TYPICAL STAGE SECTION, FOR LIGHTING.

or color produced. There are one hundred and sixteen dimmers in all.

Stage lighting as an art, distinct from its scientific function, presents a very interesting study. A few illustrations will show some of the possibilities involved in this medium. In the play of "The Sleeping Beauty and the Beast" the lighting effects were quite as important as the scenery. In one of the acts, when Beauty pricks herself with the magic bodkin and falls into her long sleep, she drops on to a couch in the center of the stage and from each side a strong beam of white light is concentrated upon her, while the lights of the borders are dimmed successively from the rear, the footlights finally dropping out and leaving the stage in almost complete obscurity except for the startling relief of the effect in the center. In the play of "Ben Hur," a most striking and novel effect was produced in the last act. The stage was filled with some two hundred and fifty or three hundred people, the hero and his mother in the foreground waiting for coming of Christ. The people all turn toward the quarter from which the Lord is expected and a broad beam of light is thrown down from high up in the flies, at first so broad that it mingles with the general illumination of the stage. As the borders and footlights are slowly dimmed the broad ray of light becomes more evident. This is narrowed down very slowly while the borders and footlights are dimmed continually, until the light becomes a mere pencil of vivid illumination. As the lights on the stage are dimmed to the vanishing point the pencil of light is narrowed down until it disappears. Any one who has seen this light will appreciate how striking it is and how cleverly the supernatural is indicated rather than shown.

In a play which was produced at the Garrick Theater, Philadelphia, a short time since, sunrise effects were very cleverly simulated by sheets of gelatine colored an even gradation from deep blue green, through crimsons, reds, oranges, yellows, and a pale, clear white light, which were drawn upward in front of a box containing a bank of strong lights. The color illumination was thrown from each side upon the stage and in the course of a few minutes all the varying effects of dawn were reproduced in a most striking manner.

In the "Wizard of Oz," the effect of a cyclone is produced by dimming the lights on the stage and dropping a thin gauze curtain across the front, upon which is projected the illumination from a stereopticon in front of the

gallery, with a circular slide upon which are painted a dim representation of clouds and hurling masses of vapor and dust. The trick of course is obvious to anyone who is familiar with the theater, but the effect is carried out very cleverly, and the kaleidoscope and stereoscope are used in a variety of effects to help out stage delusions.

These illustrations might be extended almost indefinitely but they are sufficient to indicate in a measure the possibilities and scope of stage lighting. As was stated in the beginning, however, the science and art of stage lighting has yet to be perfected. Our effects are crude as compared to what we could imagine, and the whole system of footlights is radically wrong. Some attempts which have been made to produce a more rational illumination will be described under stage construction.

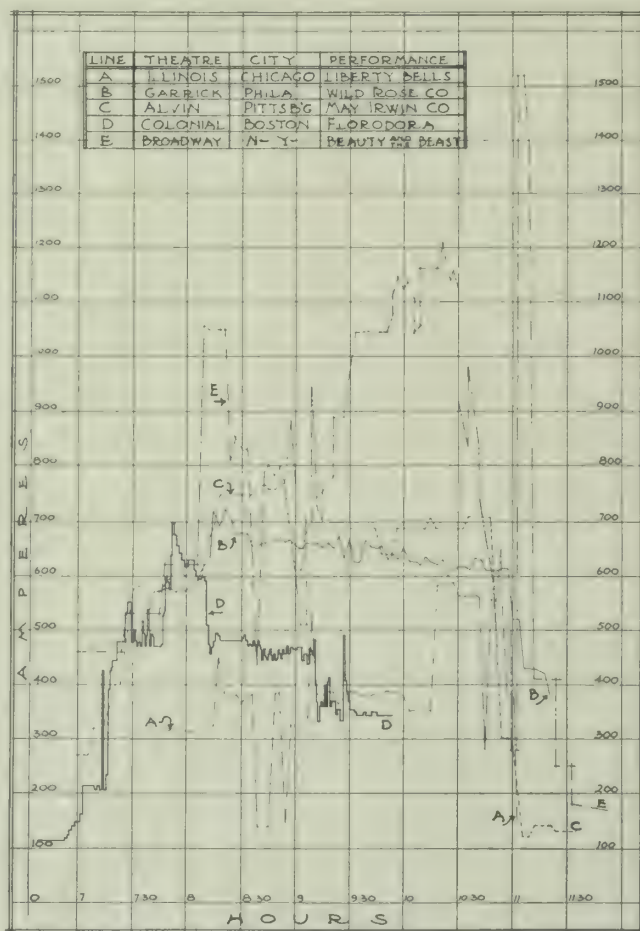


TABLE SHOWING ELECTRICAL CONSUMPTION IN AMPERES.

REPRESENTATIVE BARTHOLODT, whose Public Buildings Bill carries a total appropriation of \$23,000,000, favors a change in the method of appropriating funds for Government structures. Hitherto it has been the custom for the Treasury Department to deduct from the appropriation for a building the expenses of the Supervising Architect's Office. In this manner substantial sums have been lopped off the amount originally intended to be available for the buildings themselves, and greatly to the disappointment of districts where the buildings were to be located. Mr. Bartholdt proposes that appropriations for the buildings be left intact by the Treasury, and that the cost of designing and superintending them, as well as other expenses of the Supervising Architect's Office, be provided for in the appropriations for the maintenance of the Treasury Department.

A GREAT new boulevard one hundred and fifty feet wide has been approved for execution in Paris. It is to be absolutely straight and is to continue the Champs Elysées to the forest of St. Germain, ten miles distant. It will contain foot paths, wagon roads, electric tram lines and speedways for automobiles, but is to have no grade crossings. It is proposed to line a portion of the boulevard with model tenements for the small wage-earners. This improvement is supposed to be a part of that magnificent scheme for the further improvement of Paris which was recently laid by the Prefect of the Seine before the Municipal Council. It represents several years of study by experts, and is said to involve a total expenditure of \$80,000,000.

Armories for the Organized Militia—II.

BY LIEUT.-COL. J. HOLLIS WELLS.

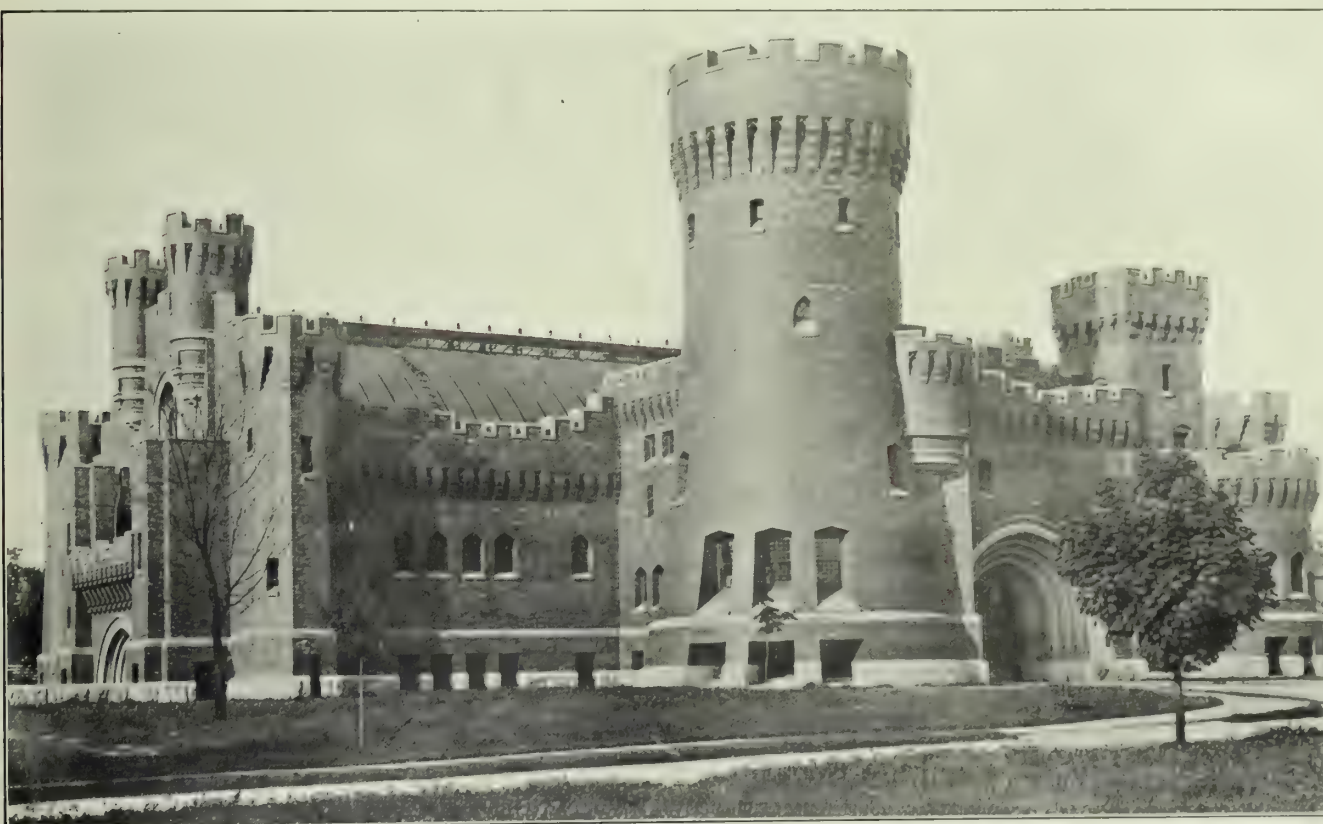
IN designing the floors for an armory, a live load of seventy pounds per square foot may be assumed except, of course, for the floor of the drill hall. The usual hollow tile construction between floor beams, 3 x 4 inch spruce sleeper and 2½ x ¾ inch comb grain yellow pine flooring, makes a very satisfactory construction for the floors.

A very good roof covering for large span construction is of so-called plastic material, which, if properly laid over five-ply of heavy roofing felt and well carried up on the walls and parapets, will prove satisfactory and be absolutely watertight. Of course everything depends on

to heat this space to 60° F. when the weather outside is 0° F.

The lighting of the building is an important item and may be best and most economically accomplished by direct current generators located in the cellar.

For the drill hall, the system installed in the 71st Regiment Armory has proven very satisfactory. The area of the floor is about forty thousand square feet. Suspended from the lower chords of the trusses, at a height of about thirty-five feet from the floor, are seventy-five (75) chandeliers, each comprising five 4½-ampere arc lamps, with concentric diffusers



ARMORY AND GYMNASIUM, STATE UNIVERSITY, COLUMBUS, OHIO. Yost & Packard, Architects.

the workmanship around gutters, valleys and the flashings of the parapets, but with experienced superintendence and competent workmen, the old trouble with leaking roofs has been entirely obviated at very small sacrifice of time.

If possible, an armory should be equipped with a heating, power and lighting plant so as to be absolutely independent of all outside connections which might be destroyed in time of riot and insurrection.

The heating plant may be economically installed on the one-pipe system, by running trunk lines through the cellar and taking off therefrom the vertical risers and branches to direct plain surface radiators. Heating coils should be run around the inside and just below the windows of the clere-story, so as to avoid draughts. The heating surface for the drill hall should be sufficient

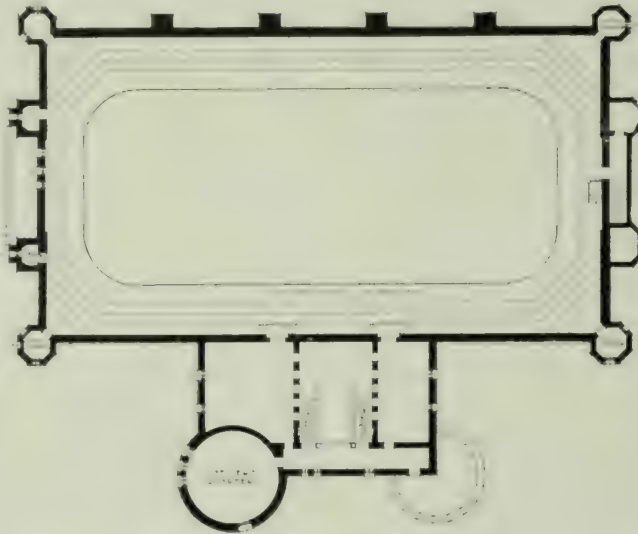
such as are manufactured by the General Electric Company. Beneath the galleries, the regular system of carbon filament, 16-candle-power lamps are used to destroy shadow. The remainder of the building generally is lighted about thirty square feet of floor space to each 16-candle-power of lamps, and diffusion is obtained by the use of Holophane glass throughout. A more modern system could be installed in place of carbon filament lamps of high voltage, by using high efficiency lamps, either Tantalum or Tungsten, and a glassware for diffusion, treated by a process discovered by Major Zalinski, U. S. A., retired, which, although more expensive in first cost, is very much cheaper in operation, and in every way more satisfactory in general results. In designing fixtures for this type of lamp, however, it must be remembered that the lamp must hang vertically.

All plumbing should be substantial and the workmanship should be of the best, for the wear and tear is something appalling. An excellent method to obtain sanitary wash rooms and toilets for the enlisted men is to use absolutely nothing at all absorbent. The floors should be tiled with vitreous tile, the walls lined with white glass, having sanitary curves at base, and the partitions may be of slate. The wash room should contain at least forty (40) strong, porcelain basins, with both hot and cold water compression faucets. Water closets and urinals should be isolated from the wash room. The best urinal to use is of solid porcelain, similar to those now in use in the Hudson Terminal and other buildings in New York City. Water-closets should preferably be of the siphon jet variety, with hardwood seats extra strongly attached and without covers, and all may best be flushed by some approved flushometer

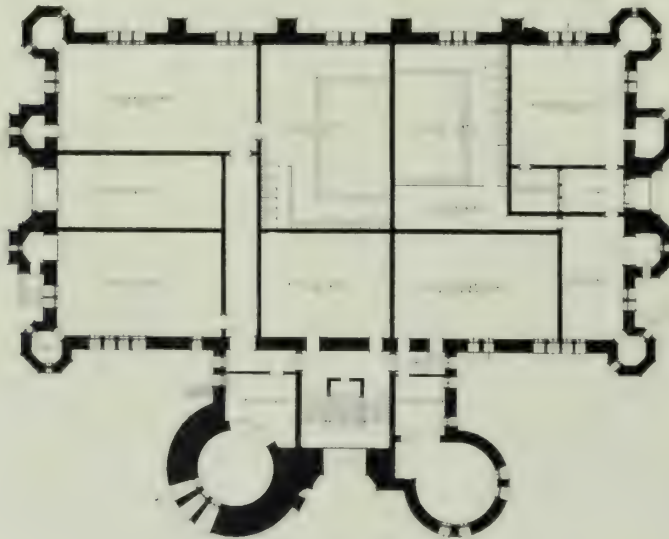
two sets of fire lines running up through the building, with hose of sufficient length to reach all parts of the building.

A plunge bath is a great convenience, and of course there must be an ample number of showers for both officers and men, six for the former and not less than thirty for the latter. The hot water system should, therefore, be carefully controlled with thermostats and mixing chambers, with thermometers attached to the showers. Proper dressing rooms adjoining the shower and plunge bath rooms are, of course, a necessity. The partitions between showers may be of thick, rough glass, supported in iron frames, and the walls and floors tiled.

These are some of the necessary accessories for a first-class armory building, but, of course, much depends on the ingenuity of the architect, or on the amount of money available, as to just



GALLERY AND SECOND FLOOR PLAN.



BASEMENT PLAN.



FIRST FLOOR PLAN.

FLOOR PLANS, ARMORY AND GYMNASIUM, STATE UNIVERSITY, COLUMBUS, OHIO.

device. Avoid, by all means, cisterns and chain and pull devices.

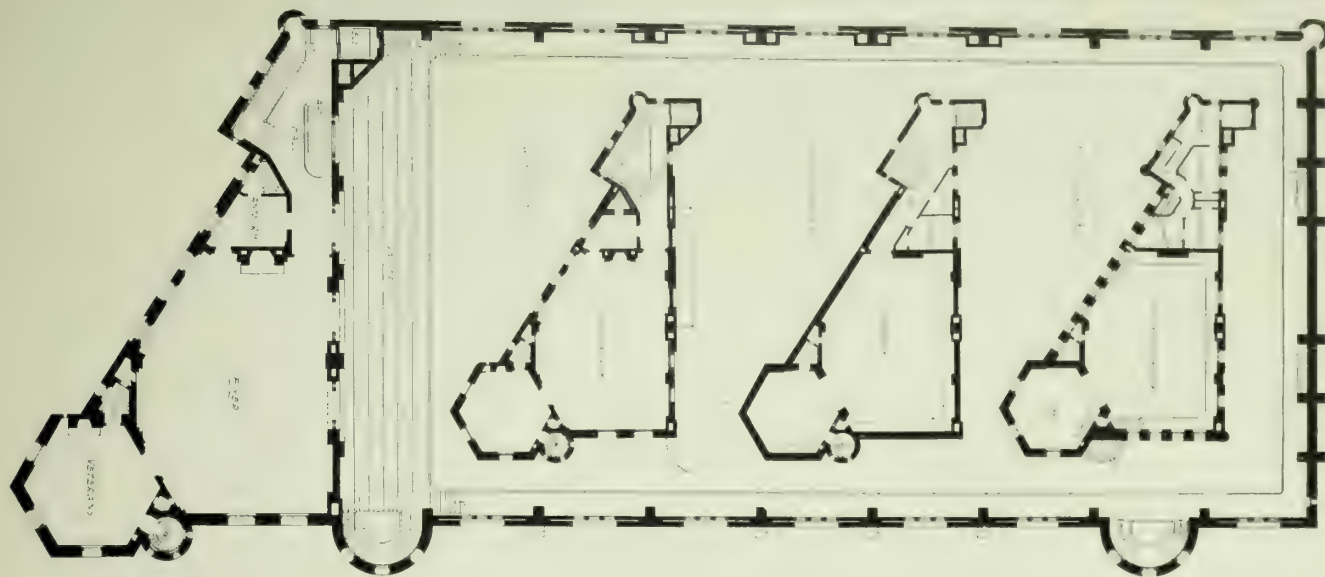
The water supply is necessarily from sources outside the building. It would be well, therefore, to tap the street mains from two or three points, and carry these lines to a common point in the building, usually the suction tank, where one is required. Both hot and cold water should be supplied to all basins, slop sinks and showers.

In order to protect from fire, it is well to install an electric pump of a capacity of about two hundred gallons per minute, this pump is also necessary to raise water to the highest point of the building, into a roof tank. A careful study of the water supply system is well worth while, and its installation should be in the hands of an expert. There should be at least

how much further one may go. These, however, are the general requirements for a well-equipped building.

The colonel of a regiment is its administrative head, and requires for his individual purposes two rooms, one reception and one office, the former, a formal room in which may be kept the colors and regimental trophies, this should be about 20 x 35 feet in size, but the office may be much smaller.

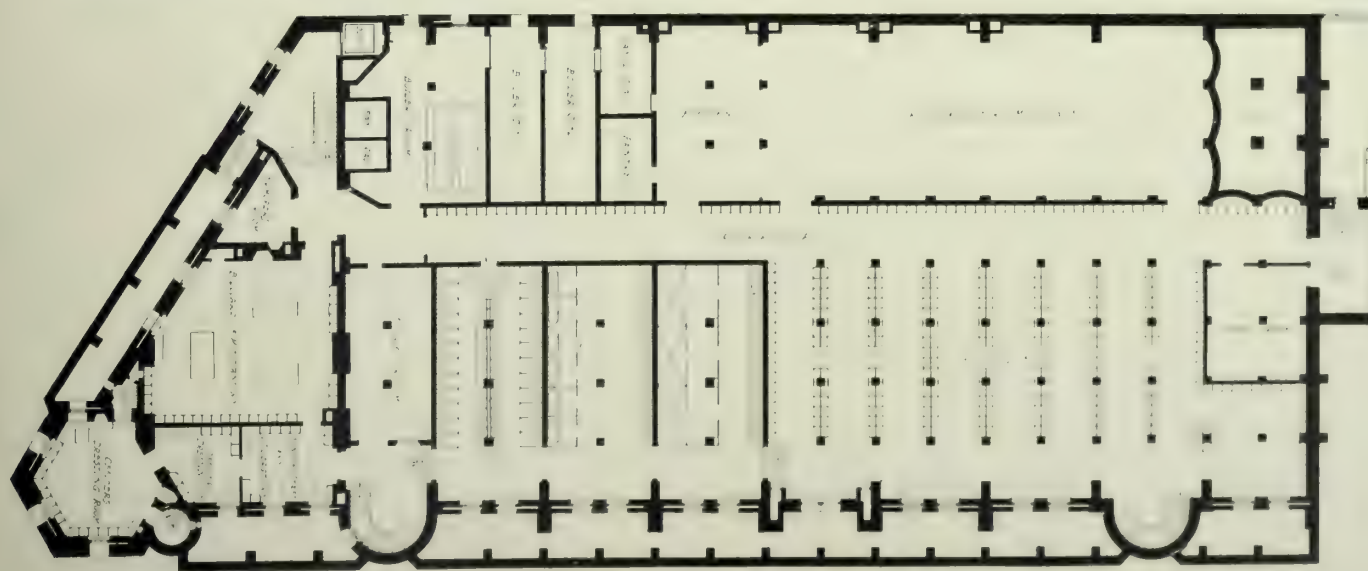
The colonel also requires a well-equipped toilet room and a large closet. The four adjutants should have their locker room adjoining the colonel's quarters. A room containing four hundred square feet will do for this purpose, but just off of this should be the adjutants' office. In this room is transacted the bulk of the civil and military business of the regiment. There are at times probably ten men on duty here, and officers and



SECOND, THIRD, FOURTH AND FIFTH FLOOR PLANS.

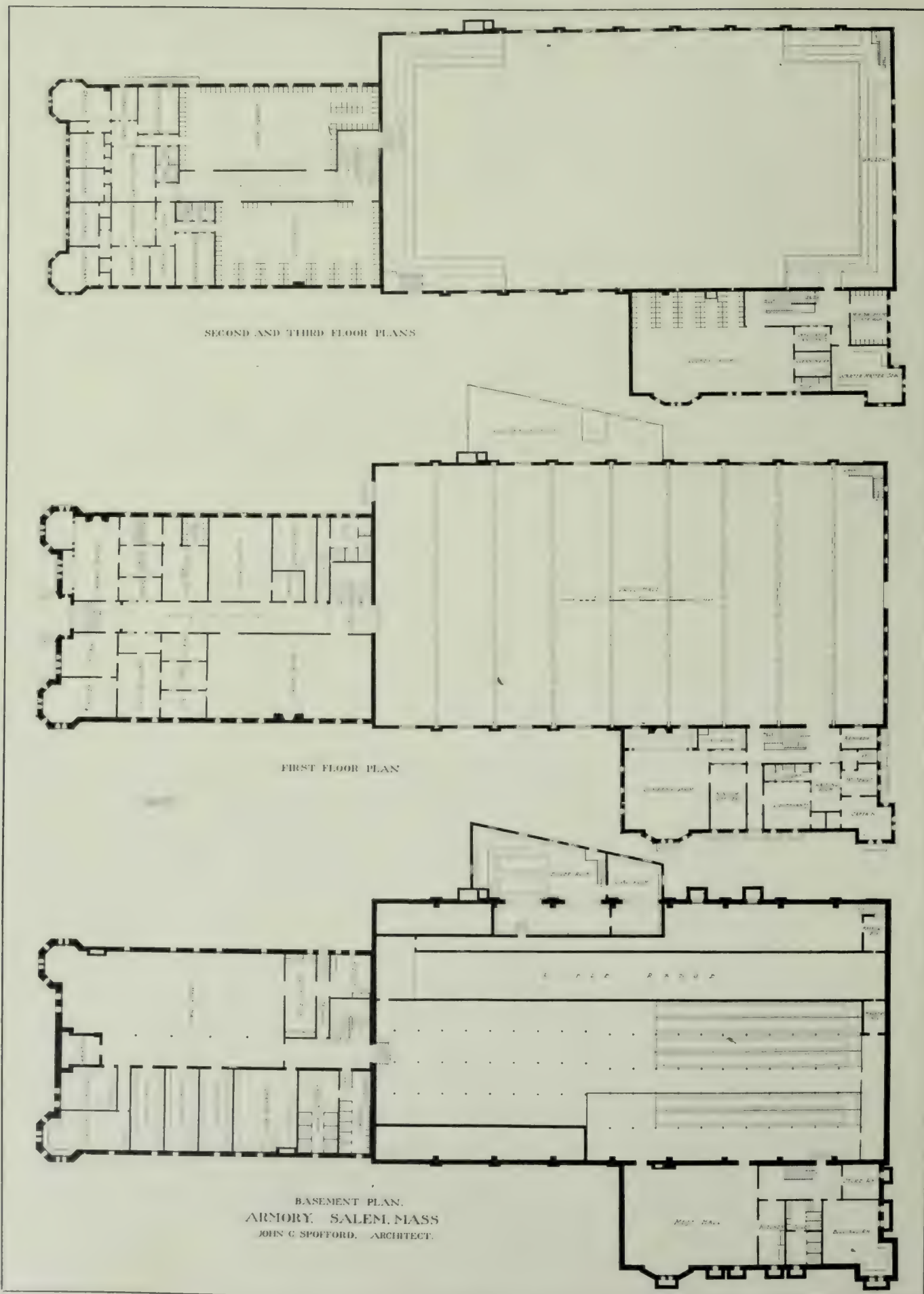


FIRST FLOOR PLAN.



BASEMENT PLAN.

ARMORY FOR FIRST CORPS OF CADETS, BOSTON.
William G. Preston, Architect.

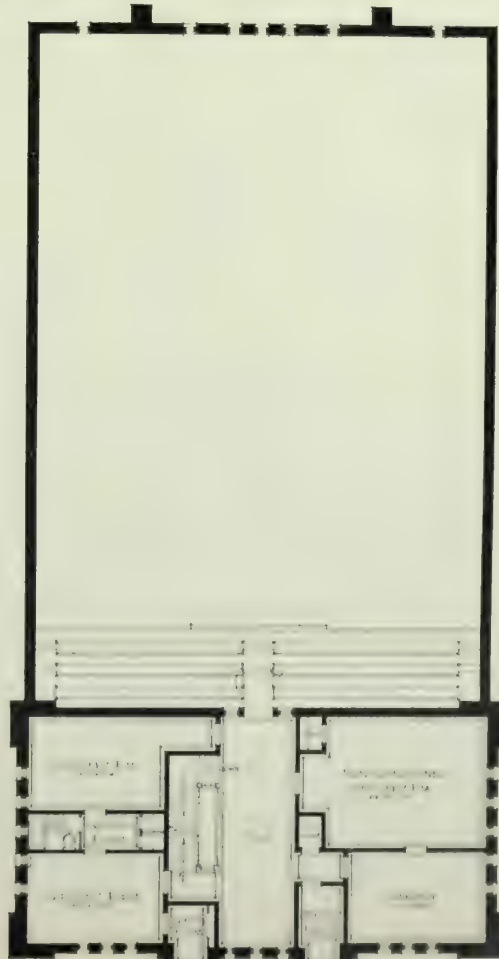




FIRST FLOOR PLAN.

STATE ARMORY,
MARLBOROUGH,
MASS.

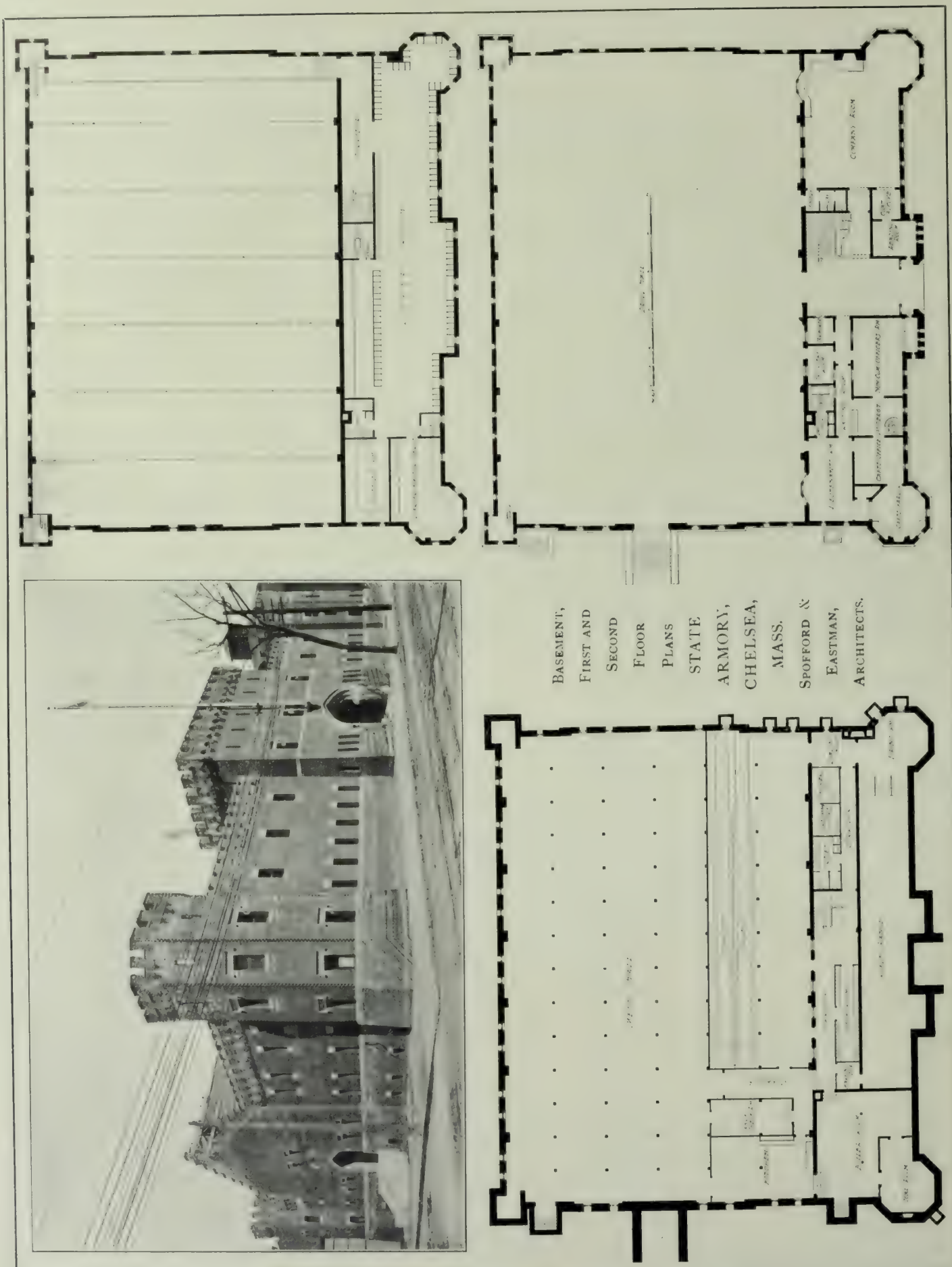
ALLEN & COLLENS,
ARCHITECTS.

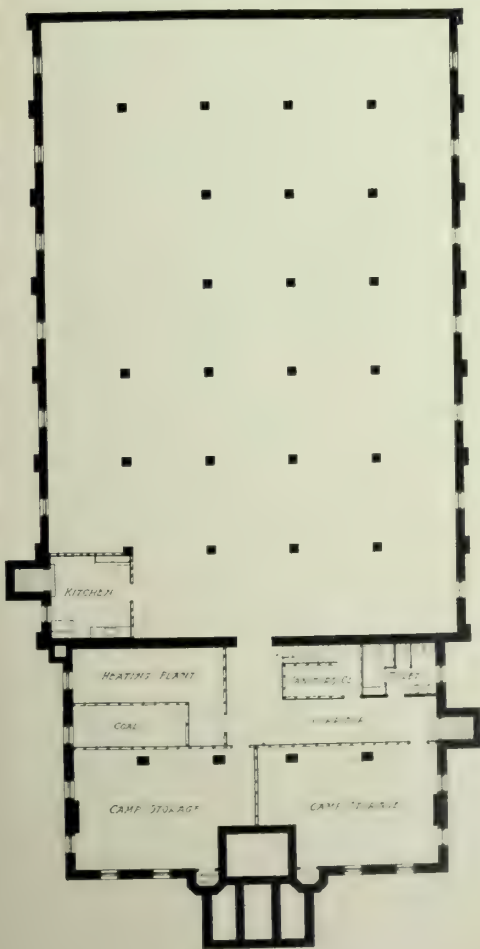


SECOND FLOOR PLAN.

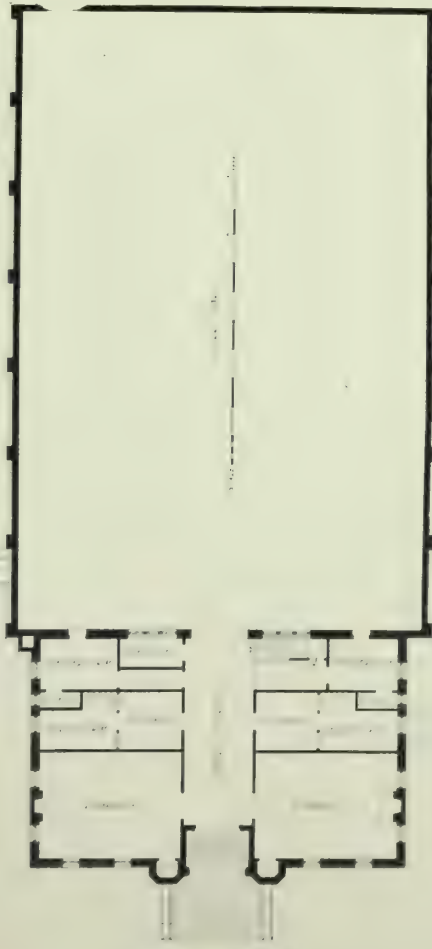


BASMENT,
FIRST AND
SECOND
FLOOR
PLANS
STATE
ARMORY,
CHELSEA,
MASS.
SPOFFORD &
EASTMAN,
ARCHITECTS.





BASEMENT PLAN.



FIRST FLOOR PLAN.



SECOND FLOOR PLAN.

ARMORY AT CHESTER, PA.

Price & McLanahan, Architects.

non-commissioned officers are in and out. Each of the four adjutants and each of the four sergeant-majors require desks, and the regimental clerk has his typewriter in this room. About twelve hundred square feet of floor space is, therefore, the minimum that should be allotted to the adjutants' office, for with all the file cases, safes and other paraphernalia, this room should not be cramped. This suite of rooms, colonel's and adjutants', should be on the same floor as the drill hall. The lieutenant-colonel requires a room about three hundred square feet, with ample closet room and toilet. This room, for convenience sake, should adjoin the colonel's reception room.

The board of officers' room may be placed on this floor, and this should be a show room, of about fifteen hundred square feet of floor space.

The three majors require two rooms, one containing about three hundred square feet of space, and a locker and dressing room of about two hundred square feet. Each company should have three rooms: a parlor, a locker room and a small store room. In order to describe a well-designed armory, from the standpoint of a militia man, it might be well, perhaps, to refer again to the new armory of the 71st Regiment, N. G., New York. The site is particularly a fortunate one, because Thirty-fourth Street is some seventeen feet higher in elevation than Thirty-third Street, so that it was possible to place the drill-room floor about six feet above the level of Thirty-fourth Street, and have two stories below. In these lower stories are located the company parlors, locker rooms and

store rooms. The parlors are 21 x 42 feet and are located on the floor immediately under the drill floor. In wide corridors off the company parlors, the rifles are kept in oak racks, which have heavy plate-glass sliding front that can be kept locked. The line officers' locker, dressing and toilet rooms are also on this floor, as well as the offices of the quartermaster, the library, recreation rooms and the store rooms for the companies. These store rooms are interior, and are ventilated at the top into the corridors, into which fresh air is driven by means of a fan. The quartermaster's office is divided into three parts, one his private office, about 10 x 20 feet; the office of the battalion quartermasters, 10 x 20 feet, and a general room of about one thousand square feet, in which the quartermaster sergeants handle the clothing supplies, and have their desks, closets and other appurtenances. The library is 28 x 47 feet in size, and is well furnished with bookcases, tables, comfortable chairs and divans,—each company parlor and the library has a fireplace.

The recreation room is really a mezzanine gallery, overlooking the gymnasium and is about 32 x 126 feet.

At one end are located six billiard and pool tables, and at the other end games may be played and the men served with soft drinks and cigars.

The gymnasium is two stories in height and is about 35 x 80 feet and opens directly into the theater, which is 35 x 68 feet, so that both rooms may be used in conjunction.

This theater has a gallery. There is an entrance direct from the street into a lobby, off from which are hat and coat rooms and toilets. Immediately adjoining the gymnasium are four bowling alleys of regulation length. The company locker rooms are located on this lower floor, immediately under the parlors, and are each entered either from the corridors or down a flight of stairs from the parlor. A completely equipped kitchen with ranges, refrigerator boxes, steam tables, soup kettles, coffee urns, etc., is located here, as are also the showers, toilets and wash rooms for the men, and the large store rooms and work shops for the regiment, all of which are fully equipped.

The boiler and engine rooms are also located on this floor, as are also the ventilating fans and motors, which supply fresh air to the corridors and exhaust from the rifle and pistol ranges, which are located in the extreme easterly end of the two lower stories.

A description of these ranges is in order. There is the standing range and the prone range,

which is mezzanined above the landing. At each range there are six targets on a line.

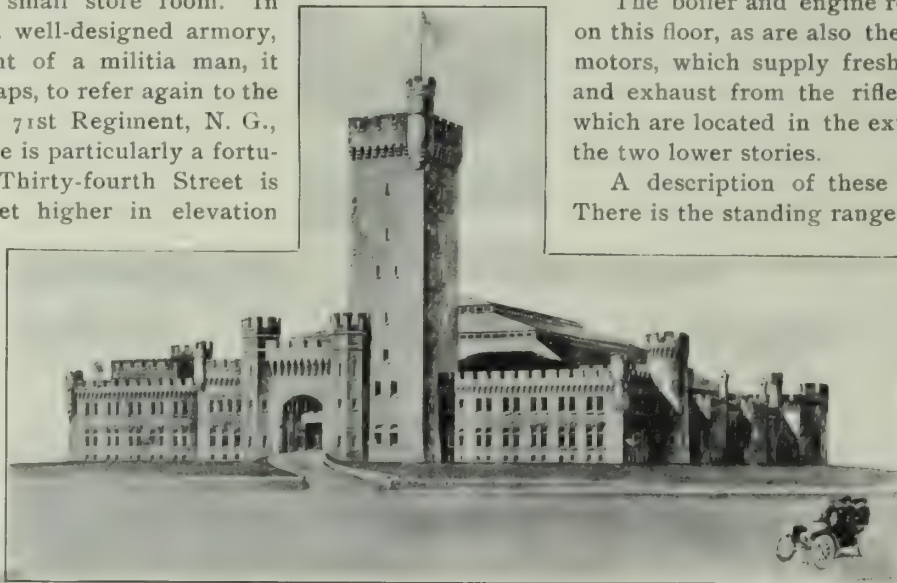
A twelve-inch solid brick wall divides the gymnasium and the theater from the ranges, which are about one hundred and sixty-six feet in length,

from the firing point to the targets. Heavy steel plates protect the ends and the ceilings wherever necessary, and by means of inclined steel plates with apertures in them stray shots are held from passing down the range.

At the extreme end of the range beyond the targets are located twelve bullet catchers 4 ft. 6 in. in height each. These catchers are made of half-inch steel plates bent spiral in shape, so as to catch the bullets and allow them to drop easily into pockets beneath.

In front of the targets are built masks of 10 x 10 inch spruce timbers, with openings through sheathed with two-inch spruce planking spiked to the timbers. The floors of these openings and masks extend over the markers' pit up to the target frame so as to form a platform. The object of these masks is two-fold: to protect the markers in the pits, and to prevent ricochet shots from striking other targets than the one the firer intended.

The frames for targets are of heavy spruce timbers and have white pine pulley stiles and target frames with



SIXTY-FIFTH REGIMENT ARMORY, BUFFALO.

George J. Metzger, Architect.

pulleys and cords. Each target has a double frame, one to counterbalance the other, so that when one is up the other is down. These frames must be accurately set and are locked in place automatically.

At the firing point there are ash partitions with splayed openings and hinged shutters. In these partitions also are the holes and boxes for used ammunition, brackets and apertures for the stationary telescopes, sliding partitions which may be used to form compartments separating one shooter from the other. The walls at the firing point are sheathed with ash. Just beyond the partition above described and about twenty feet toward the targets there is erected a mantlet made of sheets of tin

of his telescope, spotting his own shot, but the value of the shot is conveyed to the scorer by means of a very ingenious contrivance, the basic patents of which are controlled by the Western Electric Company. In this particular case one man scores for six.

In the pit there are five push buttons for each target, and these buttons operate a small lamp which illuminate vari-colored small discs, which are fixed in brass plates. There are six of these plates and five discs in each plate, each disc corresponding in color to the marking disc used in the pit. These plates and discs are all contained in what appears to be an ordinary roll-top desk. At the moment the marker presses the button in the pit a small



DRILL HALL, ARMORY FOR FIRST CORPS OF CADETS, BOSTON. William G. Preston, Architect.

soldered together and fastened to 6 x 6 in. hemlock studding. This tin mantlet has apertures corresponding to the openings in the partition at the firing point. Between this partition and the mantlet are placed the ducts which ventilate the firing point. The targets are brilliantly lighted by electric lights and reflectors. At the firing point each man controls his own light. By means of telephones the scorer may communicate with the marker.

A most interesting system of marking has been adopted with most satisfactory results. After a man has fired, the target is changed, the shot marked in the usual way, by means of a disc, the man firing, by means

lamp is lighted at the firing point, and this light continues to burn until the scorer pushes his button, which puts out all lights on this particular target and indicates to the man firing and to the marker that the shot has been scored and the target cleared. This entire apparatus is operated by a small motor generator set, and is comparatively simple and most satisfactory in operation.

The pistol range is located above the rifle range. It has simply six lines of wires, which are to all intents and purposes trolleys on which paper targets can be made to travel back and forth.

This range, too, is protected at all points by heavy steel plates.



HOUSE
WINCHESTER, MASS.
ALLAN EDWARD BOONE,
ARCHITECT.



A List of Standard Architectural Books for Offices and Public Libraries.

BY EDWARD R. SMITH.

(*Reference Librarian, Avery Architectural Library,
Columbia University.*)

[It is the intention in this series to give a list of elementary and fundamental books on architecture that architects, the younger men especially, who contemplate the starting of a library, and librarians who wish to add an architectural section, may be enabled to obtain easily data which will be helpful. The parts of the series will be published on two sides of one leaf of THE BRICKBUILDER each month and so arranged that the leaves may be easily lifted for separate binding.

The measurements of books will be given according to the metric system. Key to description of books: .23 x .16 x .082—length, breadth, thickness; 14 + 1443 p.—number of pages; ill.—illustrations in text; pl.—plates. The prices are those given at the date of publication with certain easily recognizable exceptions.—EDITORS.]

THE professional bibliography is large. A broad discussion would be interesting, and especially of the monumental works which have been developed in every country, and which are most desired by the collector in the end. These give the greatest charm and value to an architectural library; but before they are reached, the student should become familiar with the less pretentious, but still important, books which may properly underly the practical working of the profession. Various excursions might be undertaken with profit; but for the present it will be wise to bind our steps to a narrow and well-trodden path.

Some works of the standard elementary classes have come into the market recently; but, for the most part, the titles in our list are old friends, which have proved their value by long acquaintance. They are inexpensive also, and within the reach of almost every office and library.

DICTIONARIES.

Joseph Gwilt, F. S. A., F. R. S. A. (b. 1784 d. 1863). *An Encyclopædia of Architecture, Historical, Theoretical and Practical*; illustrated with about seventeen hundred engravings on wood. Revised, portions rewritten and with additions (in 1888) by Wyatt Papworth, Member of Council of the Royal Institute of British Architects, etc. London & New York; Longmans, Green & Co.; 1899; 8° (.23 x .16 x .082), 14 + 1,443 p., ill., 1 pl., cloth, 21s.

Gwilt's *Encyclopædia* is the earliest attempt to discuss in one volume all the elements of architectural information. The last of its nine editions, that of 1888 reprinted in 1899, is too early to include all information now needed; but in general matters, which underly all architecture and which do not vary greatly with time, Gwilt is useful. The little treatises which it contains on geometry, perspective, conic sections, and especially that on shades and shadows, a matter in which Gwilt was much interested, may save one the trouble of carrying special books on those subjects.

Russell Sturgis, A. M., Ph. D., Fellow of American Institute of Architects; and many Architects, Painters, Engineers, and other expert Writers, American and Foreign. *A Dictionary of Architecture and Building, Biographical, Historical and Descriptive*. New York and

London, the Macmillan Co.; 1901-02 (Later ed., 1905); 4to (.27 x .21 x .05), 3 vol., ill., 106 pl.; cloth, \$18.00 net.

This book is, undoubtedly, the most convenient in its field. Its editor has especially preserved his sense of proportion. Occasionally an article is allowed the importance of a monograph, but for the most part one finds under the several headings simply so much as is needed for immediate service and is not forced to make his own abstractions. Space is thus left for an abundance of entries, which cover the field of architectural inquiry most completely. "Fitness for ready consultation" is secured by many cross references.

The Architectural Publication Society (founded in 1848, dissolved after the completion of the Dictionary). *The Dictionary of Architecture*. London, 1853-92; small fol. (.38 x .28 x .06 to .035); 8 vol. 2,300 p., text, ill., 223 pl. Detached essays and illustrations issued during the years 1848-52. London, 1853; small fol. (.38 x .28 x .03), various paging, ill., 28 pl. The entire work, including the "Detached Essays and Illustrations," was issued originally to subscribers only, in parts for £21. All parts not distributed were destroyed. A copy was offered by Batsford in 1900 for £17 10s. The Architectural Publication Society's Dictionary is the most extensive book of its class. Although intended to deal thoroughly with English matters it is perfectly general. An important feature is the distribution of abundant bibliographies, which show extensive research in periodical literature. The "Detached Essays and Illustrations" consist of a series of extended articles which are sometimes bound in place with the other material.

Thomas Dinham Atkinson, A. R. I. B. A., Architect. *A Glossary of Terms used in English Architecture*. London, Methuen & Co., 1906; 12mo (.17 x .11 x .025), 24 + 320 p., 265 ill., cloth, 3s. 6d. net.

This little volume, illustrated by pen sketches, may well be given a place on the shelves of a limited library.

Paul Planat, Director of Construction Moderne and author of many works on architecture, etc. *Encyclopédie de l'Architecture et de la Construction*. Paris, Dujardin et Cie. No date, 4to (.27 x .2 x .05), 6 vol. in 12; ill., 640 pl., 360 fr. unbound.

This book is loosely made up in the characteristic French way and its articles approach occasionally to the type of monographs, but the plan of the work is broad, and its tone decidedly modern, much space being given to utilitarian and structural matters, with which the editor of Construction Moderne is especially familiar. The illustrations are sketchy reproductions of more careful originals, but they are abundant and well selected.

HISTORICAL MANUALS.

Alfred D. F. Hamlin, A. M., Professor of the History of Architecture, Columbia University. *A text-book of the History of Architecture*. London and New York; Longmans, Green & Co., 5th ed. 1904; crown 8° (.195 x .14 x .033), 25 + 453 p., ill., pl., cloth, \$2. (College Histories of Art.)

Professor Hamlin's compact history covers the entire field with balance and regard for proportion. The chapter form is good for his purpose, a bibliography including both general and special works, a discussion of

general development, a discussion of typical buildings, and finally a larger list of monuments. The style is noted as a model of clear condensation.

James Fergusson (b. 1808, d. 1886). *A History of Architecture in all countries, from the earliest times to the present day.* 3d ed. R. Phené Spiers, editor. London; John Murray, 1891-99; Vol. 1, 1893; 8° (.23 x .17 x .056), 5 vol., ill., 5 pl., 2 maps; £6 4s. Vol. 1-2, *History of Ancient and Mediæval Architecture.* Vol. 3, *History of Indian and Eastern Architecture.* Vol. 4-5, *History of the Modern Styles of Architecture.*

The "History of Architecture" is still the most useful historical manual in any language. It is a source of constant wonderment that the author managed to study critically so much building; and still more, that he collected such an unlimited supply of excellent illustrations, all laboriously engraved on wood. Phené Spiers's revision has brought the old book pretty well up to date.

François Auguste Choisy: Professor of Architecture at the École des Ponts et Chaussées, Paris, and author of many works on architecture. *Histoire de l'Architecture.* Paris, Gauthier-Villars, 1899; 8° (.24 x .17 x .04), 2 vol., 866 ill. by J. Sulpis; 40 fr. unbound. A most unique historical manual is this of Choisy, dealing entirely with the development of types, and illustrated exclusively by diagrams drawn in geometric projection. In a work like this the individual monument counts for little. The principles underlying groups of monuments and their characteristic forms are under consideration.

Banister Fletcher, F. R. I. B. A. (b. 1835 d. 1899). Late Fellow of, and Professor of Architecture in Kings College, London; and Banister F. Fletcher, A. R. I. B. A. *A History of Architecture on the Comparative Method for the Student, Craftsman and Amateur.* 4th ed. Revised and enlarged. London, B. T. Batsford; New York, Scribner, 1901; 8° (.22 x .15 x .06), 42 + 1 + 521 p., 256 plates comprising 1,300 illustrations. For the use of professors, lecturers and others the 128 plates of drawings of construction and monumental detail contained in this work are issued as large lecture diagrams (40 in. x 27 in.), and lantern slides of the whole of the plates are also obtainable. Particulars of these may be obtained from the author.

The Fletcher manual has a more definite form than books generally of this class. Each chapter, or rather subject, is cast according to a prearranged "System of Classification": 1. Influences, 2. Architectural Character, 3. Examples of Building, 4. Comparative, 5. Reference Books. The fourth heading is quite interesting, showing in tabulated form the changes which occur in architectural motives from period to period.

Russell Sturgis, A. M., Ph. D., F. A. I. A., editor of a "Dictionary of Architecture and Building." *A History of Architecture;* Vol. 1. *Antiquity.* New York, the Baker Taylor Co., 1906; 4to (.27 x .18 x .048), 23 + 426 p., frontispiece, ill., pl.; cloth, \$5.00. Mr. Sturgis's *History of Architecture*, of which only one volume has appeared, promises to equal his *Dictionary* in usefulness. It will replace the old treatise of Fergusson, than which, of course, it is more scholarly and comprehensive. The photographic cuts furnish a rare body of illustration.

Salomon Reinach: *Apollo, Histoire générale des arts plastiques.* From the French by Florence Simmonds; *The Story of Art through the ages, an illustrated Record.* New York, Charles Scribner Sons, 1905; 8° (.215 x .14 x .05), 11 + 316 p. nearly 600 ill., cloth, \$2.00.

Reinach's *Apollo* seems too general to be mentioned in an architectural bibliography; but the book is so good and the architectural part so considerable that the student may wisely add it to his collection.

GENERAL MANUALS.

John Beverly Robinson, Member of the American Institute of Architects. *Architectural Composition.* New York, D. Van Nostrand Co., London, B. T. Batsford, 1908; 8° (.22 x .16 x .025), 11 + 234 p., ill.; cloth, \$2.50.

Mr. Robinson's discussion of architecture along the lines of simple principles stands almost alone in the literature of architecture. It is concise, intelligent and should be quite indispensable in an architectural library.

Julien Guadet (b. 1834, d. 1908), Inspecteur générale des bâtiments civils, Professeur et membre du conseil supérieur à l'École des Beaux-arts. *Éléments et théorie de l'Architecture; cours professé à l'École nationale et spéciale des Beaux-arts; Ouvrage honoré d'une souscription du ministre de l'instruction publique et des Beaux-arts, Paris.* Paris, librairie de la Construction Moderne, 1902-05; 4to (.27 x .20 x .04), 4 vol. ill. pl.; 100 fr. unbound.

Prof. Guadet's work should certainly be translated into English. The architectural profession in America is becoming dependent upon it as upon almost no other book. It is a "complete body of Architecture" more fundamental and thorough than any yet published.

Eugène Emmanuel Viollet-le-Duc (b. 1814, d. 1879). *Entretiens sur l'Architecture;* translated by H. Van Brunt, second vol. by Benjamin Bucknall: *Discourses on Architecture.* Boston, James K. Osgood & Co., 1875-81, 4to (.26 x .18 x .045), 2 vol., 20 + 1 + 517 p., ill., pl.; cloth, \$10.00.

The "Entretiens" of Viollet-le-Duc may well take a place among our general works as a broad and thorough discussion of principles in all styles and periods. It is fortunate that we have such a good American translation.

Handbuch der Architektur, unter Mitwirkung von Fachgenossen, hrsg. von J. Durm, H. Ende, E. Schmitt und H. Wagner, various editions. Darmstadt, 1880-96; 8° (.27 x .19 x .04), ill., pl. Div. 1, *Allgemeine Hochbaukunde;* Div. 2, *Die Baustile;* Div. 3, *Hochbau-construction;* Div. 4, *Entwerfen, Anlage und Einrichtung der Gebäude.* Price altogether about \$186. More than 40 vols.; not yet completed.

Although the *Handbuch der Architektur* is beyond the reach of many of our readers, both on account of its language and price, it is mentioned as a valuable book of its kind; a glorified manual in which each chapter is developed into a special monograph by a specialist of standing. These monographs may be bought separately. Some of them have passed through several editions and might well be translated into English.

Editorial Comment and Miscellany.

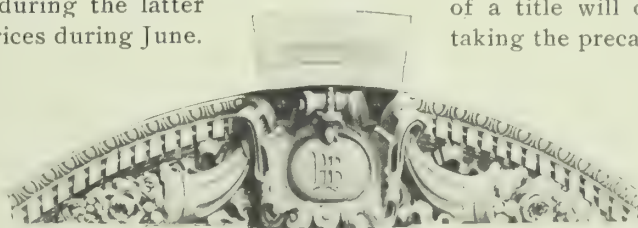
THE cost of building has now been substantially reduced by a number of causes. Steel and iron have gone down, and, generally speaking, lumber is being sold for 10 to 12 per cent less than a year ago. General contractors are willing to take less profit than at any time within the last few years and subcontractors are taking work at figures to serve little else than to hold their working organization together. Although wages for labor are nominally the same, competition among mechanics to hold their places renders the labor better and, therefore, cheaper. From the "American Lumberman" is taken the following comparison of prices for building in 1907-08 representing actual figures obtained by a party who wished to build.

	1907	1908	Per cent of Decrease
Masonry and grading,	\$1,329	\$944	29.0
Plastering,	585	313	46.8
Plumbing,	640	500	21.9
Heating,	730	570	22.0
Painting.	530	400	24.5

Lumber \$4 to \$6 a thousand less.

The 1907 prices were made during the latter part of that year and the 1908 prices during June.

WITH the intention of aiding the transaction of real estate business in New York City and State the Legislature at Albany has passed the Torrens Land Title Registration Bill. This provides for the State to do what private companies have done since title insurance has been found necessary by the great maze of transfers made in the subdivi-



DETAIL BY SOUTH AMBOY TERRA COTTA CO.
J. Warner Allen, Architect.



GARAGE, CINCINNATI, OHIO.

Samuel Hannaford & Sons, Architects.

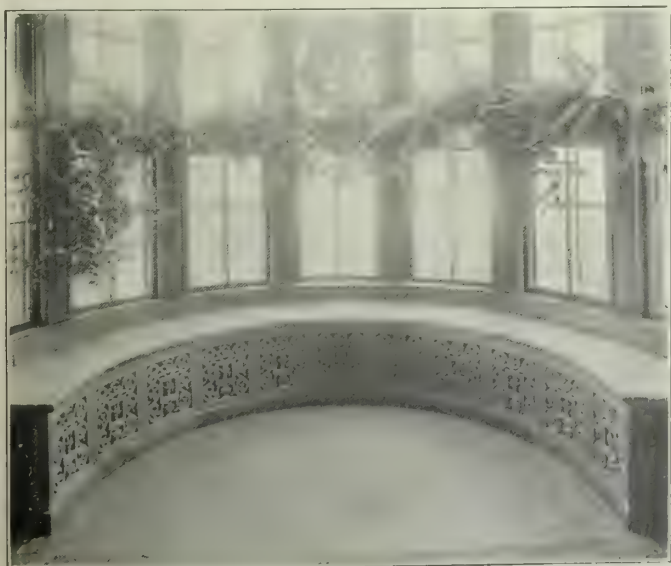
Exterior of White Mat Glazed Terra Cotta made and set by
Atlantic Terra Cotta Co.

viding and development of congested districts. The scheme, which is already in operation in several states, is scarcely more than an experiment. The marketability of a title will only be increased by the owner's taking the precaution to register it on the statute

books, which in most cases he will not do; and, after all, the efforts of a private corporation to insure its patrons against possible loss will always inspire such confidence that private title insurance business will thrive whether there is state insurance or not. The cost of registering

a parcel of land under the new law will be about fifty dollars.

NEW York has followed the example of other cities in installing high pressure water mains. The inability of the Fire Department to cope successfully with conflagrations there has operated to maintain high insurance rates. The mains cover the district between West Twenty-Third, Chambers, West Broadway and the Hudson River which has hitherto been one of great menace to the city. The method of getting the water is interesting. It is supplied by the New York Edison Company, which is under contract to fill the mains with water at high pressure within three minutes after an alarm is given. The company is penalized \$5,000 for every minute's delay. As many as twelve of the enormous engines at the company's riverside power plants are coupled together and supply the pressure by which engineers declare the water can be thrown to the summit of the highest structure in New York.



WINDOW SEAT EXECUTED IN DULL GLAZED FAIENCE
BY HARTFORD FAIENCE CO.
Willard T. Sears, Architect.

IS there any limit to the skyscraper madness of New Yorkers? asks the *Boston Herald*. The Equitable Life Assurance Society, not to be outdone by their com-

petitors in business, the Metropolitan Company, are planning a 62-story building whose top will be 909 feet above the curb on Broadway and over 200 feet above the Metropolitan structure in Madison Square. Engineering skill now furnishes a reasonable guarantee of structural safety. Fireproof construction and precautionary devices for the elevators, reduce the possibility of interior disaster to a minimum. But there is an outside interest to be considered. What is the effect of the skyscraper upon the value of the adjoining property? What will be the atmosphere in which people on the lower levels must live, when the streets become narrow defiles between towering precipices of steel and masonry? Does business growth demand these abnormal structures, or is the public welfare being sacrificed to gratify an ambition to outdo one's neighbor's in spectacular architecture?

AT the annual conference of the American Library Association at Minnetonka, Minn., the "open shelf craze," as librarians call it, was considered. A great number of thefts due to this arrangement of books was reported. Not one objection raised against it, however, can be considered valid. Many of the libraries which have adopted the open shelf were never designed by their architects to have the books thus freely accessible to the public. Nearly all the thefts of books reported could have been prevented by the planning of aisles so as

to insure the attendant having proper supervision of all readers and visitors. There is much to be gained by the public being permitted to view the books themselves, to see what books exist on a given subject and to make comparisons between them. In a great national library, the value of which lies in its completeness, the open shelf arrangement is manifestly inapplicable, likewise it must not be adopted for collections of unusually valuable or handsomely illustrated works; but to render most serviceable the many thousands of books of ordinary form, the library should bring them into as direct contact with its public as possible.



DETAIL BY NORTHWESTERN TERRA COTTA CO.
Toledana & Wogan, Architects.

OFFICIAL building reports from some fifty leading cities of the country for the month of June, received by the *American Contractor*, New York, show quite distinctly that building operations are improving, the loss as compared with June, 1907, being only 15 per cent. Substantially the same cities reported a loss of 37 per cent for March, 33 for April and 19 for May of the present year, as compared with the corresponding months of last year. New York shows a loss of only 13 per cent, a gain of 35 per cent in Manhattan, being offset by losses in Brooklyn and the Bronx. The following figures show the percentage of gain in leading cities: Baltimore, 35; Birmingham, 57; Cincinnati, 5; Columbus,

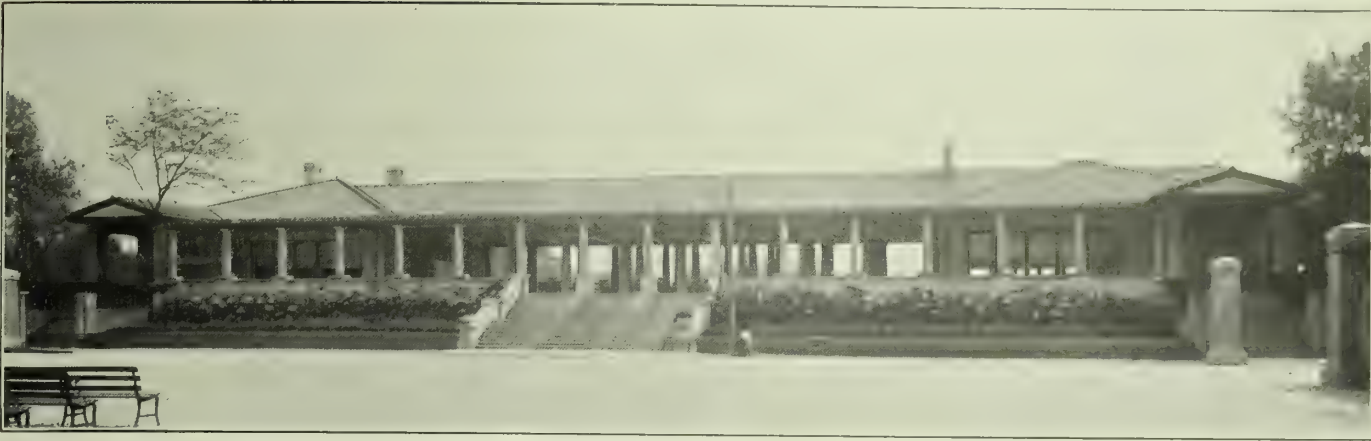


NEW MUNICIPAL BUILDING, WASHINGTON, D. C.
Cope & Stewardson, Architects.
Fireproofed throughout with Terra Cotta Hollow Tile by National Fireproofing Co.



HOUSE FOR MR. BLACK (CARTER, BLACK & AYERS).

Salt-glazed terra cotta blocks for foundation to first-floor beams; above that a heavily scored terra-cotta block. The illustration at the right shows the walls before the stucco finish was applied.



DOUGLAS PARK REFECTORY AND BOAT HOUSE, CHICAGO. W. C. Zimmerman, Architect.
Roofed with Green Glaze Tile made by Ludowici-Celadon Company.

34; Grand Rapids, 32; Milwaukee, 62; Omaha, 4; St. Paul, 43.

The percentage of loss in leading cities is: Buffalo, 11; Chicago, 6; Cleveland, 43; Detroit, 15; Hartford, 20; Indianapolis, 55; Louisville, 53; Los Angeles, 50; Minneapolis, 12; Memphis, 41; Mobile, 34; New Haven, 59; New Orleans, 32; Philadelphia, 5; Pittsburg, 47; St. Louis, 36; San Francisco, 32; Seattle, 2; Spokane, 53; Toledo, 54. Taking into account the circumstance that the presidential election occurs during the present year, the gradual decrease of total losses from 37 per cent in March to 15 per cent in June is decidedly encouraging.

The decrease in the price of structural steel seems to be producing an effect, notably in Manhattan, while the loss in Chicago is but trifling.

A COMPARATIVELY new problem for architects is suggested by the preparations to erect a huge clock on a roof-top in Jersey City, to serve as a beacon for travelers upon the river and harbor; also as an advertisement of the concern providing it. But why a roof-top? The dial of the huge timepiece is to be twenty-eight feet in diameter, thus exceeding by five hundred and forty-four square feet the area of the City Hall clock in Philadelphia, which has long held the world's record for size. That so large an object should be supported in a casual sort of way by a roof-top, shows a lack of comprehension of the architectural possibilities at hand. A dignified tower especially erected to support the clock would greatly add to the import and effect of the undertaking.

IN GENERAL.

In the competition for the Springfield, Mass., City Hall, eighty-three sets of drawings were submitted.

Edward Wanton Robinson of the Hartford Faience Co. has been elected a member of the Royal Society of Arts, England.

Louis Lenz, with H. C. Koch & Son, Milwaukee, Wis., has just returned from a trip devoted to study, through France, Germany and Italy.

Robert Brown, architect, for a number of years connected with A. H. Davenport Co., Boston, has resumed the practice of architecture with offices at 85 Devonshire Street, Boston.

The Architectural League of America will hold a competition to obtain designs for

a seal. Two prizes are offered: first \$25, second \$10. For particulars apply to H. S. McAllister, 729 15th Street, N. W., Washington, D. C.



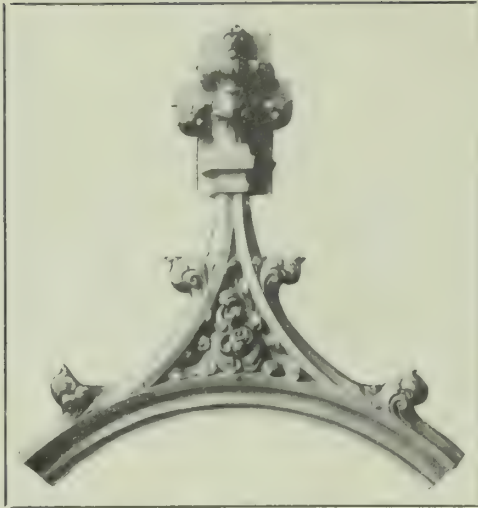
WORKS OF THE NEW YORK ARCHITECTURAL TERRA COTTA CO.
RAVENSWOOD, LONG ISLAND CITY, N. Y.
Showing the New Suspension Bridge which crosses the East River at Blackwell's Island.



DETAIL BY WINKLE TERRA COTTA CO.
Widmann & Walsh, Architects.

The St. Louis Public Library Board, of which John Lawrence Mauran is a member and Prof. F. M. Mann of Washington University, consulting architect, held a competition during April for the selection of architects for two branch library buildings. One was awarded to Mariner & La Beaume and another to Hellmuth & Spiering.

Of all the electric lighting schemes appearing in New York at night the Singer Tower enjoys the most novel and impressive. The structure appears amid a blaze of light which is supplied from below and from the surmounting cornice, many of the



DETAIL BY NEW JERSEY TERRA COTTA CO.
Shampan & Shampan, Architects.

drawings present the plumbing and drainage equipment in which 1,967 separate lavatories are shown and 169 drinking fountains for the tenants.

The collapse of several old buildings along the river front at St. Louis, occasioned by the excessive rise in the river, has resulted in renewed agitation by the newspapers of the proposition for a park along the river front. This matter has already received the attention of the Civic League of St. Louis, which published during 1907 plans for just such an improvement.

Each year the Indian Industrial School at Carlisle, Pa., expends thousands of dollars for tools, appliances and materials of construction, for the equipping of their shops and the erecting of new buildings. Manufacturers' catalogues and samples are desired by the superintendent.

Conspiracy is a charge that is always difficult to prove upon legal grounds, especially in Pennsylvania, witness the acquittal of the Harrisburg Capitol grafters. Proof of a sort may be wanting in the eyes of the gentlemen of the law; but that there is guilt on the part of the men recently tried is nevertheless the firm conviction of everyone in the community. This feeling is only intensified by the handshaking and Godspeed given the prisoners by the Harrisburg Court.

The Grant Monument in Washington is to be placed where the House of Representatives did not want it but where Mr. McKim's Park Commission does. Objections were made to the necessary sacrifice of some trees of historical or scientific interest in the Botanical Gardens; but the far greater consideration of the relation of the monument to the full development of the city, and especially that section which will form the new and enlarged Mall, has been weighed and has governed the placing of the new monument.

Progress upon the Cathedral of St. John the Divine, the corner stone of which was laid in 1892, is now marked by the completion of the roof of the choir. Of the chapels which surround this and which are intended to represent the various racial elements of the New York Diocese, the Belmont Chapel, officially known as "St. Saviour's," is expected to be ready for services in October. Good progress is also being made on the ad-

lights themselves being hidden.

The drawings submitted to the Bureau of Buildings for the sixty-two-story building proposed by the Equitable Life Assurance Society are seventy in number. Of these thirteen large

joining Chapel of St. Columba. Future progress depends entirely upon the contributions received, but funds already in hand will render it possible to have the crossing completed by a year from next November.

The Twin City Brick Co. of St. Paul, Minn., is placing upon the market a new brick called the "Autumn Leaf," which resembles the variation in the color of autumn leaves. Two buildings now in course of construction will be faced with these bricks, a Fire Engine House, St. Paul, and Insane Asylum at Rochester, Minn. The color effects are so combined in the individual bricks that they impart a soft rich tone to the entire wall. They have practically been accepted for several important building operations in New York City and Philadelphia.

The American Enameled Brick and Tile Company of New York are supplying their bricks for new building operations as follows:—Electric Plant, Hawthorne, Ill.; St. Vincent Hospital, West Brighton, N. Y.; New Schoolhouse at New Bedford, Mass.; Railway Station, Detroit, Mich.; Fire Department Houses at Everett, Mass., and Detroit, Mich.; State Capitol, Madison, Wis.; New Dispensary Building, University of Pennsylvania; five Public School Buildings, New York City; Belmont Trust Company Building, Philadelphia; Plunge Bath, Sailors' Home, New York City; Plunge Bath, Y. M. C. A., Stamford, Conn.; Plunge Bath, Tennis and Racquet Club, Cambridge, Mass.

WANTED—Architectural Draftsmen. Pay from \$2.80 to \$5.52 per diem. A competitive examination will be held simultaneously at the Navy Yards, Boston, Mass., Brooklyn, N. Y., Philadelphia, Pa., and Washington, D. C., August 3 and 4, 1908, for the purpose of establishing an eligible register of architectural draftsmen. Applications must be delivered on or before July 25, 1908. For application and further information address Commandant of the yard in which the applicant desires to be examined.

Academy Architecture, No. 32

is the latest volume and largest one ever published of it.

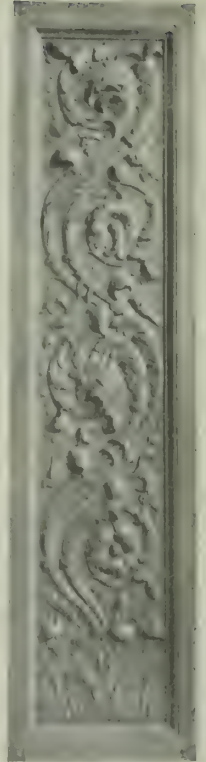
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MUTUAL LIFE
BUILDING, LOS
ANGELES, CAL.
Parkinson & Bergstrom, Architects.

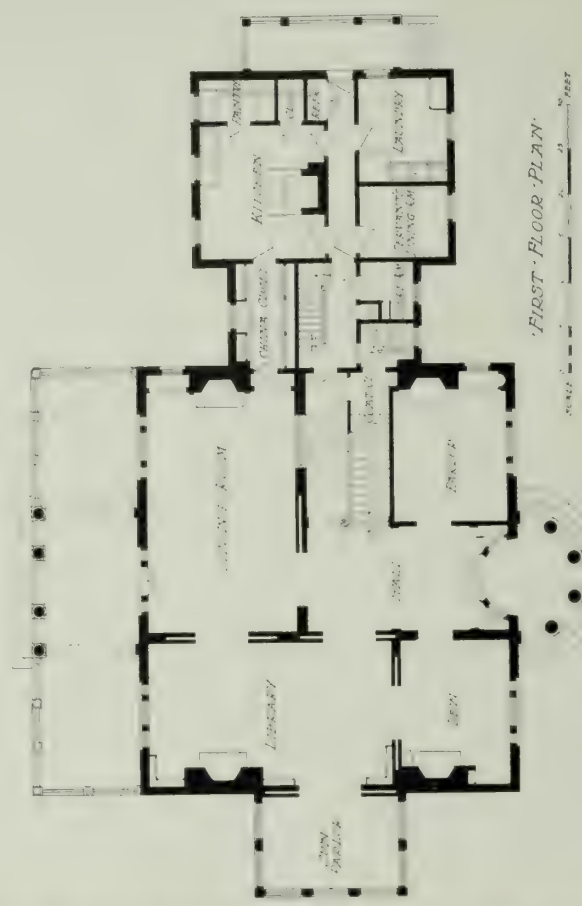
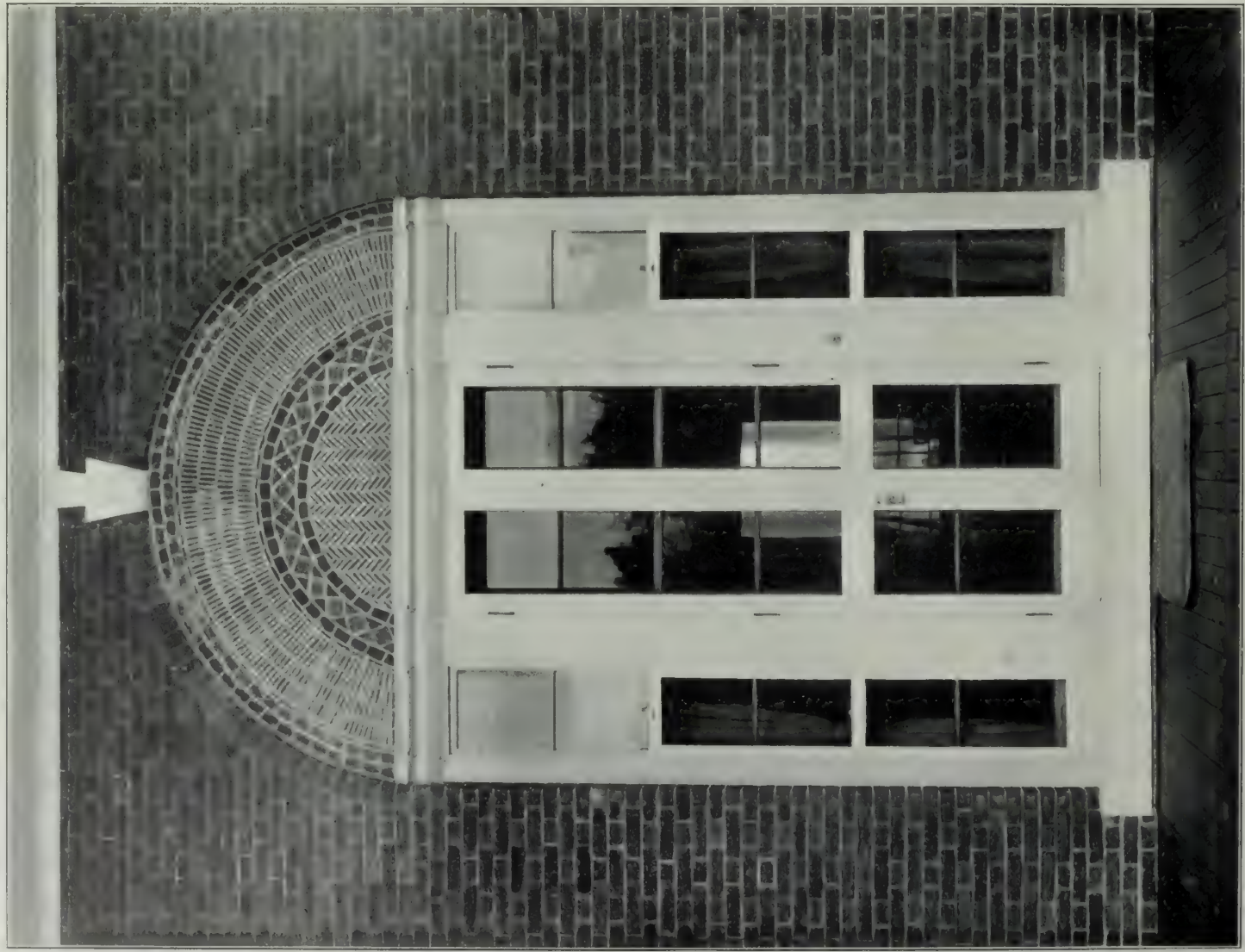


HOUSE AT LEXINGTON, MASS.

PAGE & FROTHINGHAM, ARCHITECTS







DETAIL OF WINDOW AND PLANS,
HOUSE AT LEXINGTON, MASS.
PAGE & FROTHINGHAM, ARCHITECTS.

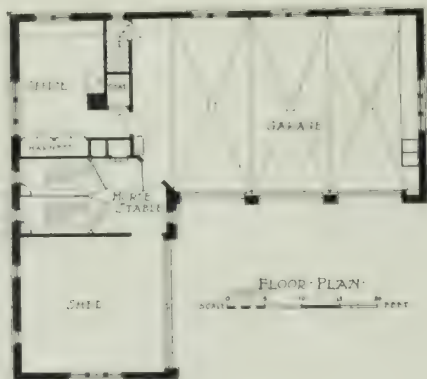


TOWARD THE ROAD.



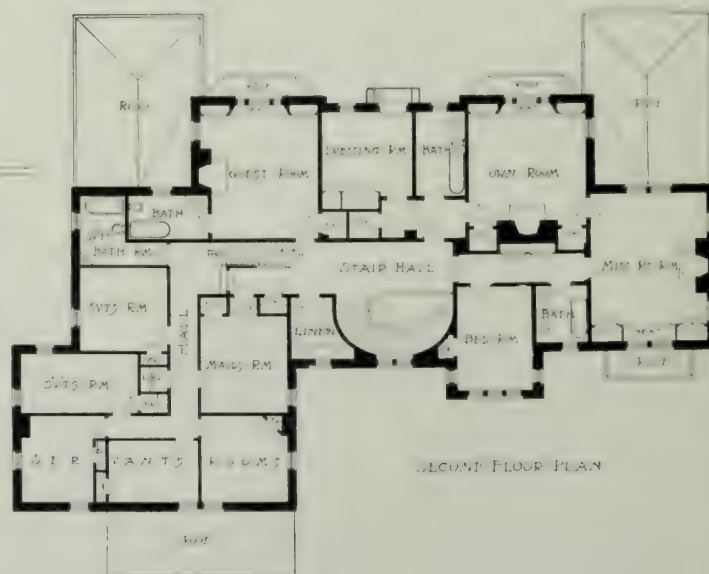
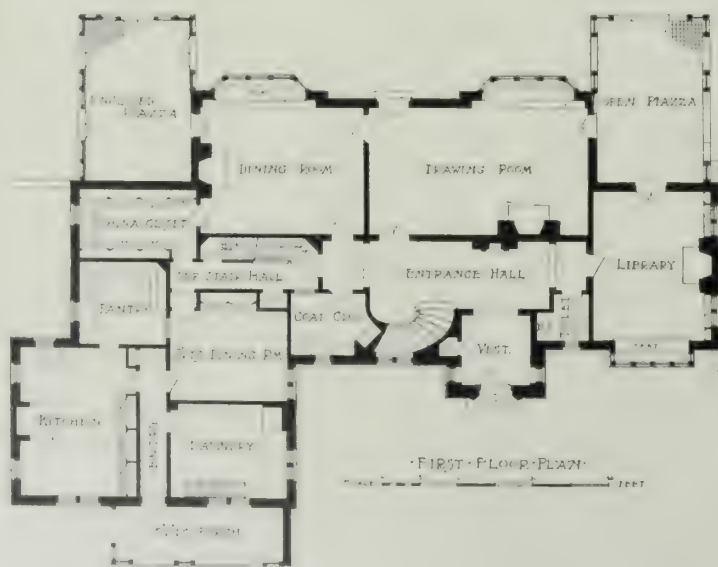
TOWARD THE GARDEN.

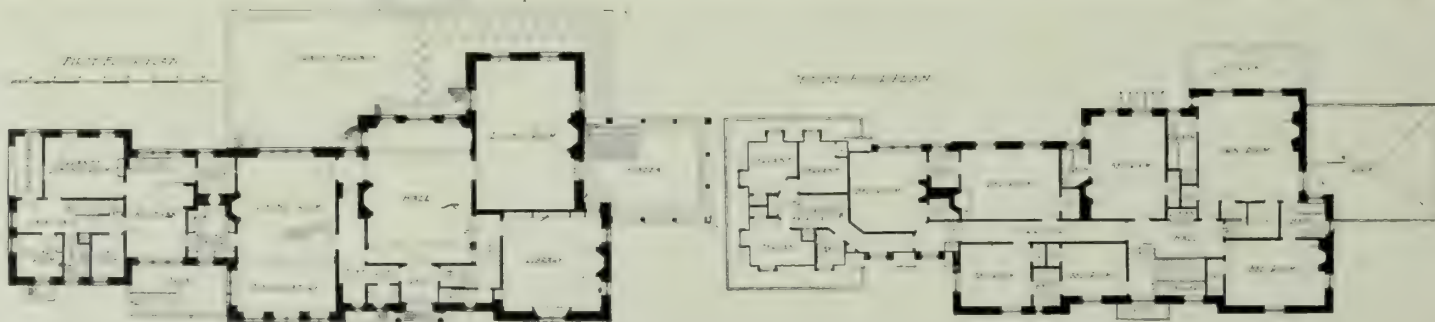
HOUSE, BEVERLY FARMS, MASS WILLIAM G. RANTOUL, ARCHT



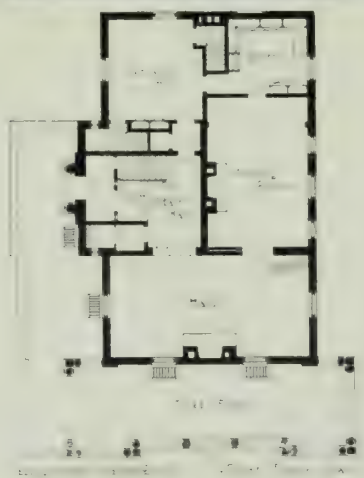
STABLE AND GARAGE
WITH FLOOR PLANS OF HOUSE
HOUSE, BEVERLY FARMS, MASS.

WILLIAM G. RANTOUL, ARCHITECT.

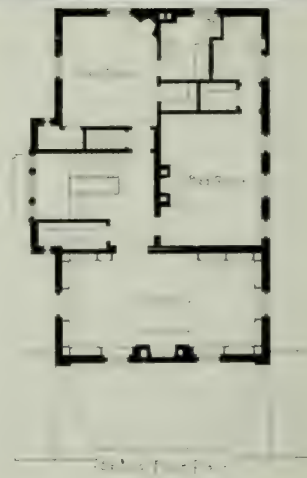




HOUSE AT DOVER, MASS. WINSLOW & BIGELOW, ARCHTCTS



HOUSE AT
OVERBROOK, PA.
CHARLES BARTON KEEN,
ARCHITECT





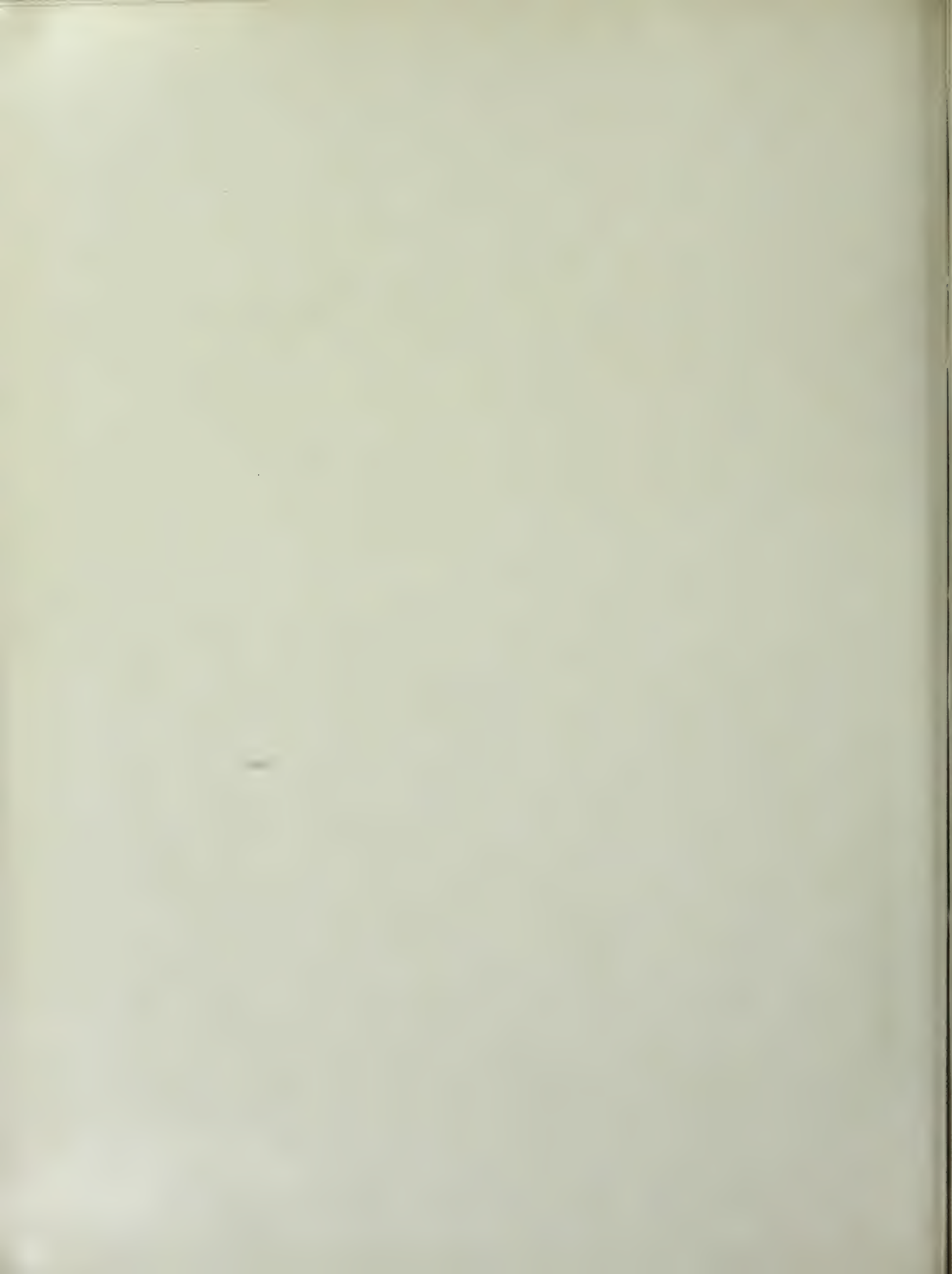
VIEW OF THE FRONT



HOUSE FOR HENRY C. FRICK, ESQ., PRIDES CROSSING MASS
LITTLE & BROWNE, ARCHITECTS.



DETAIL. HOUSE FOR HENRY C. FRICK, ESQ. PRIDES CROSSING MASS
LITTLE & BROWNE ARCHTCTS.





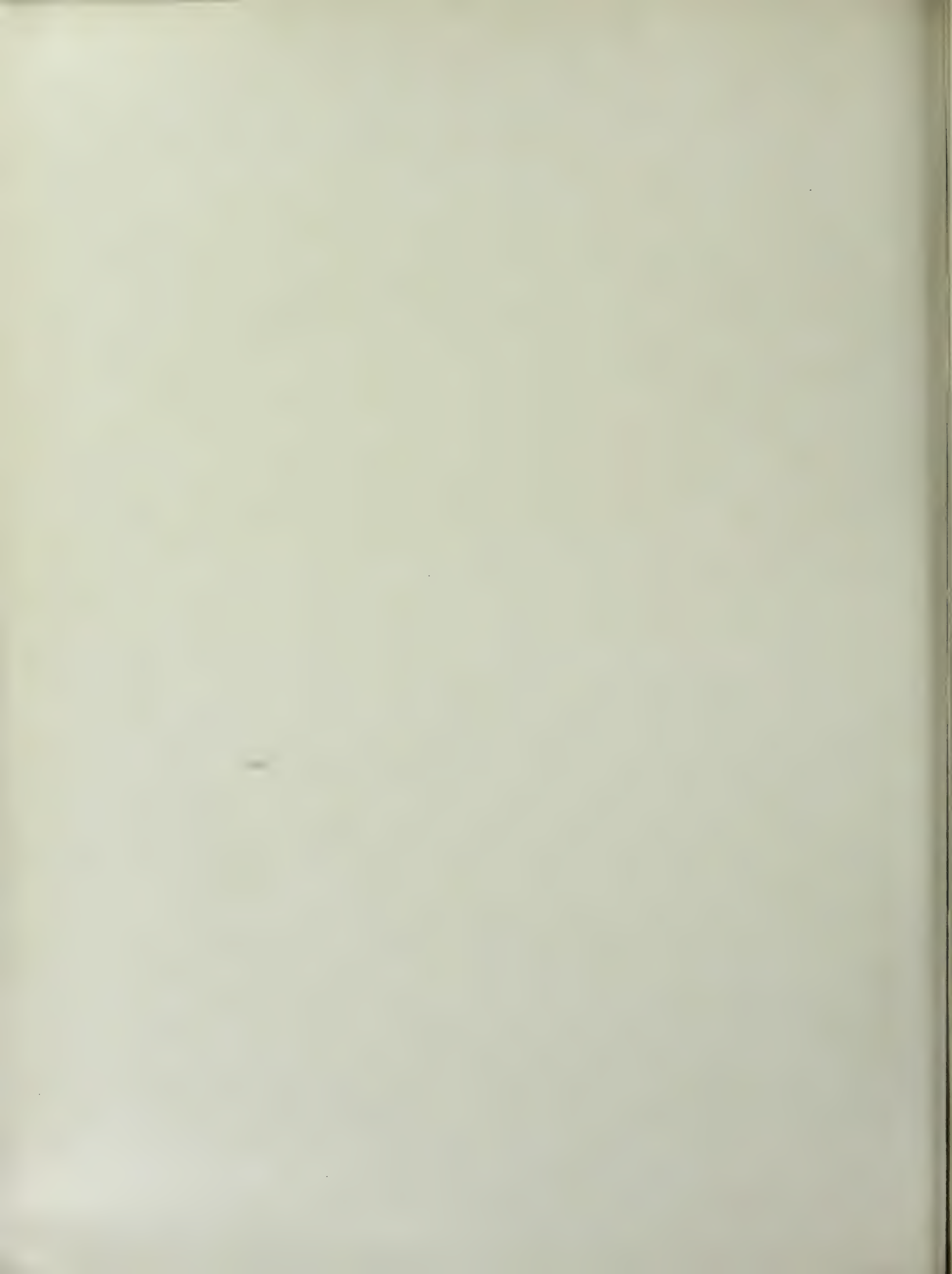
VIEW FROM THE SHORE.



END OF MAIN DRIVEWAY.



GARAGE AND PORCH.
HOUSE FOR HENRY C. FRICK, E. V. LINDS OF CHILMARK, MASS.
LATH & BROWN ARCHT.





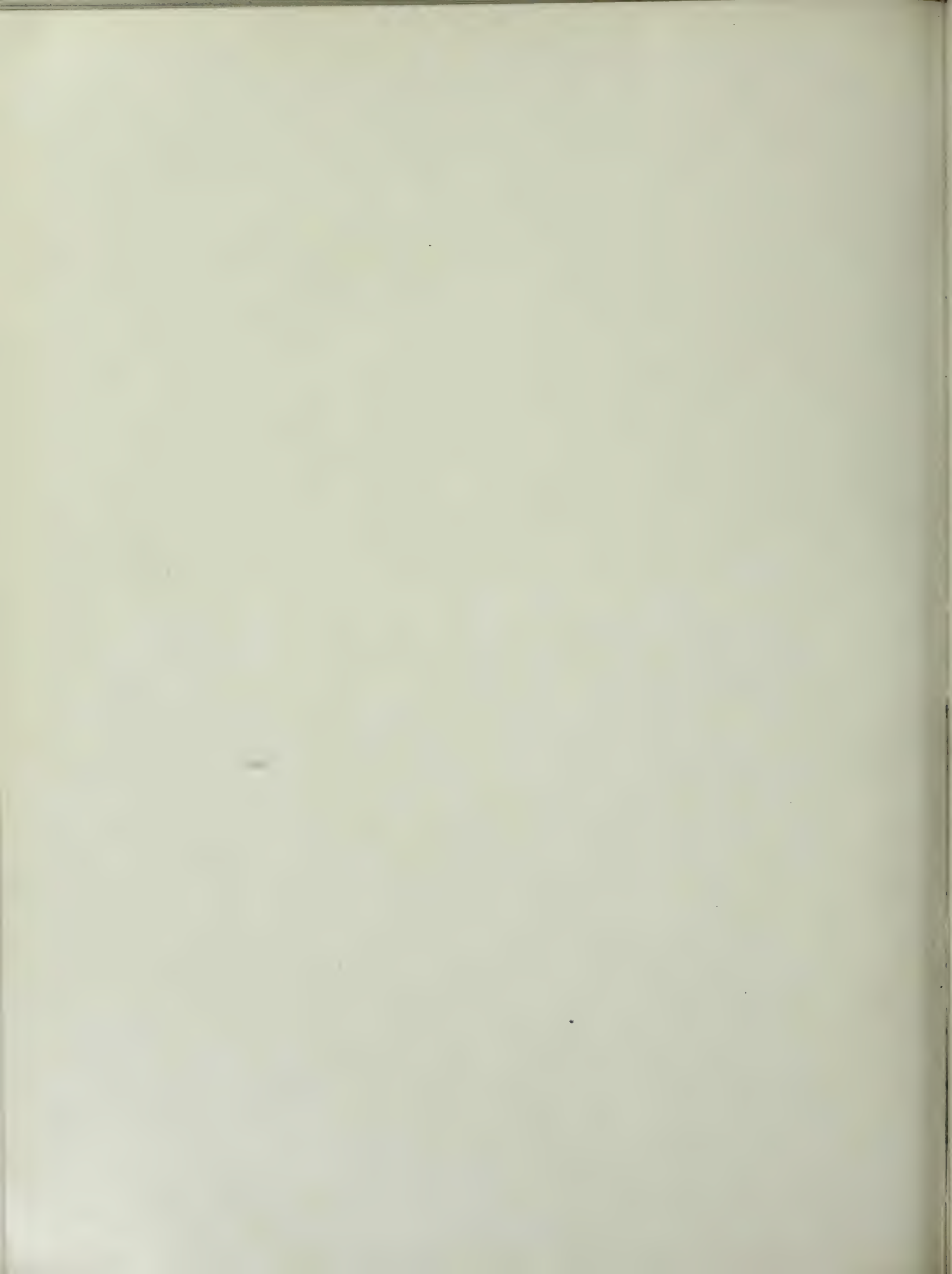
VIEW FROM THE FRONT

HOUSE AT LEXINGTON, MASS

OSWALD C. HEERING, ARCHT

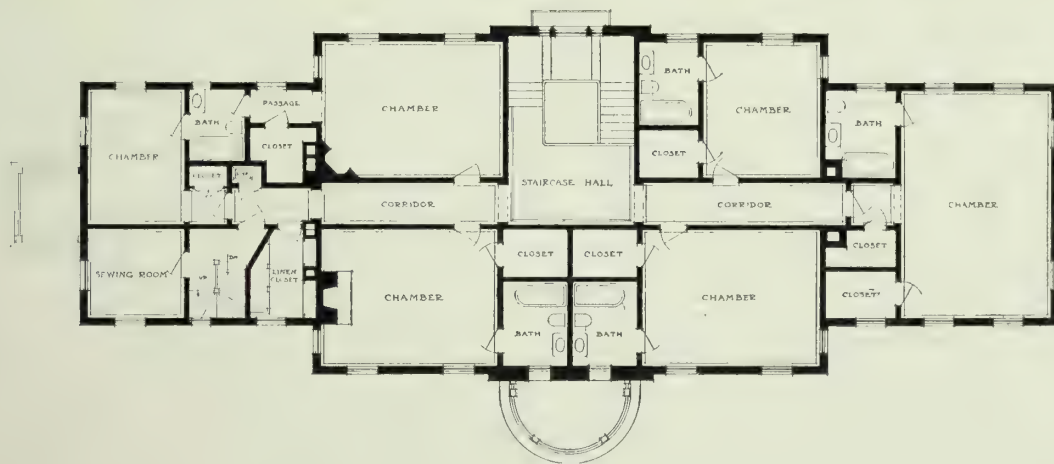


VIEW FROM THE GARDEN

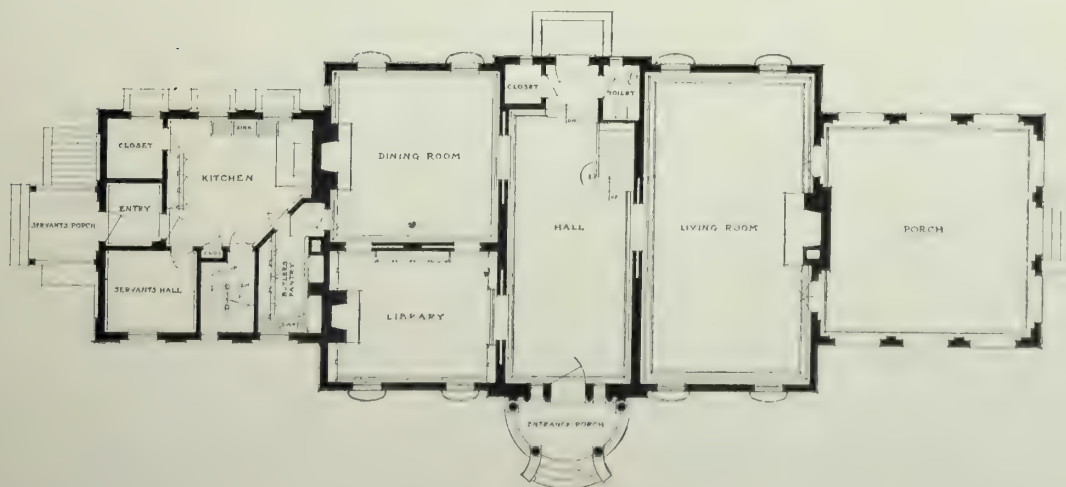




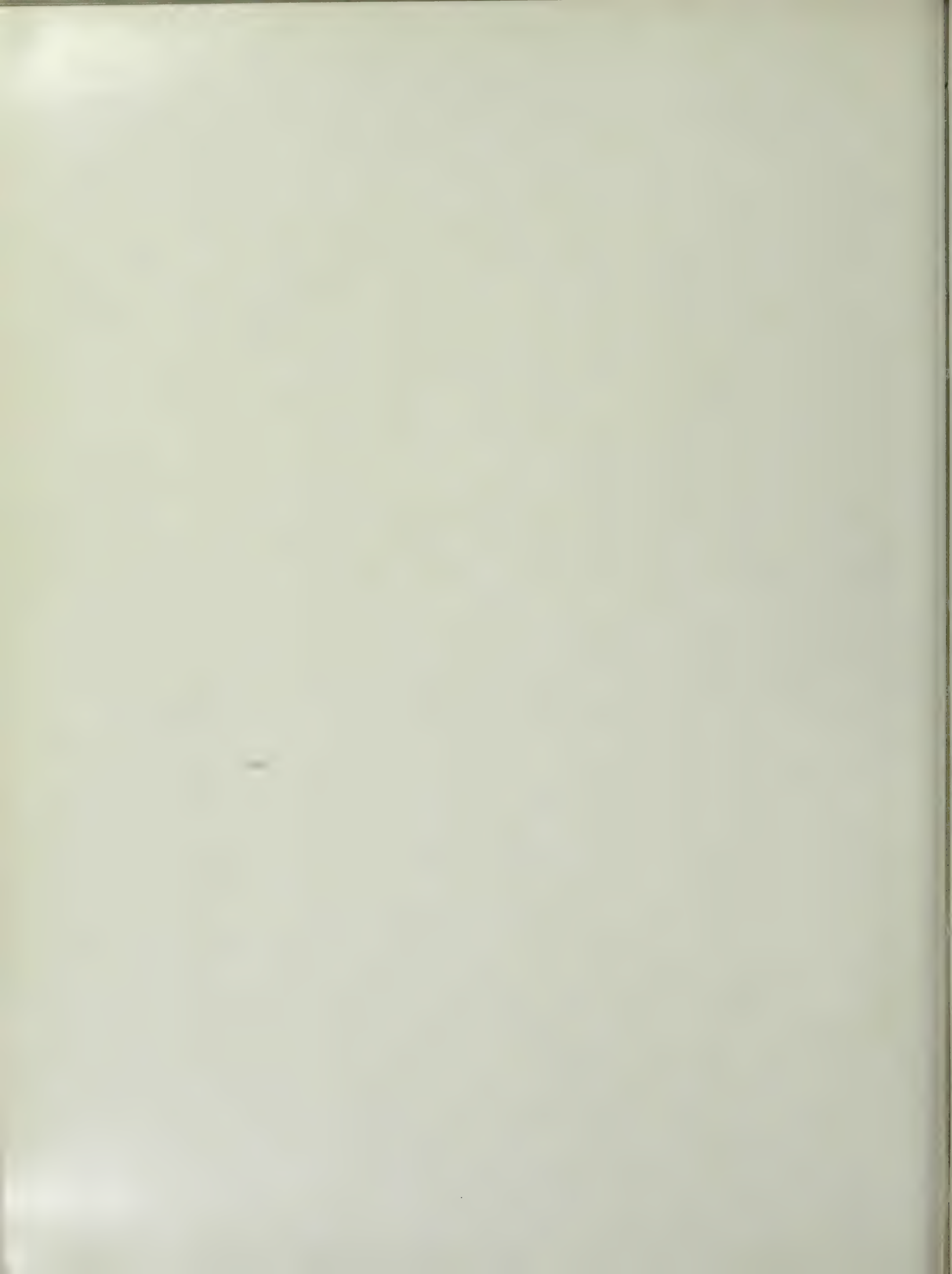
DETAILS OF ENTRANCES.



SECOND FLOOR PLAN.

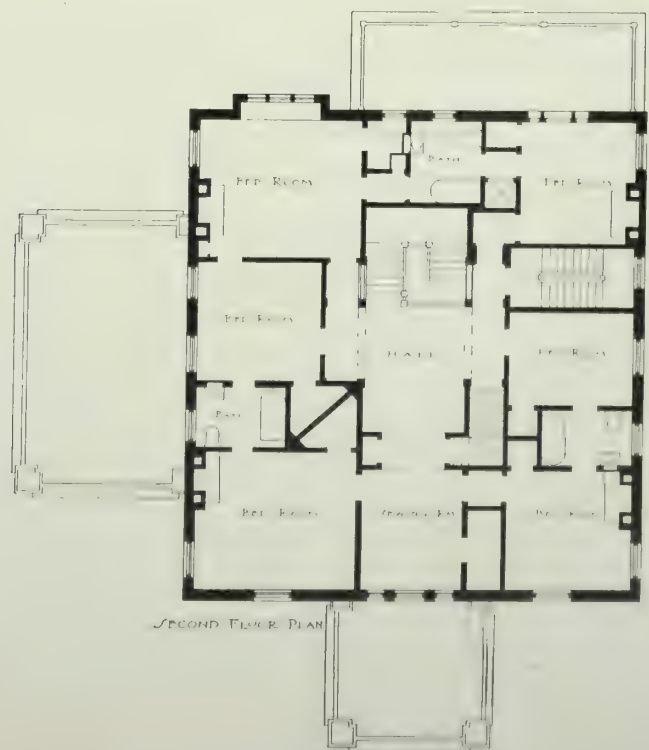
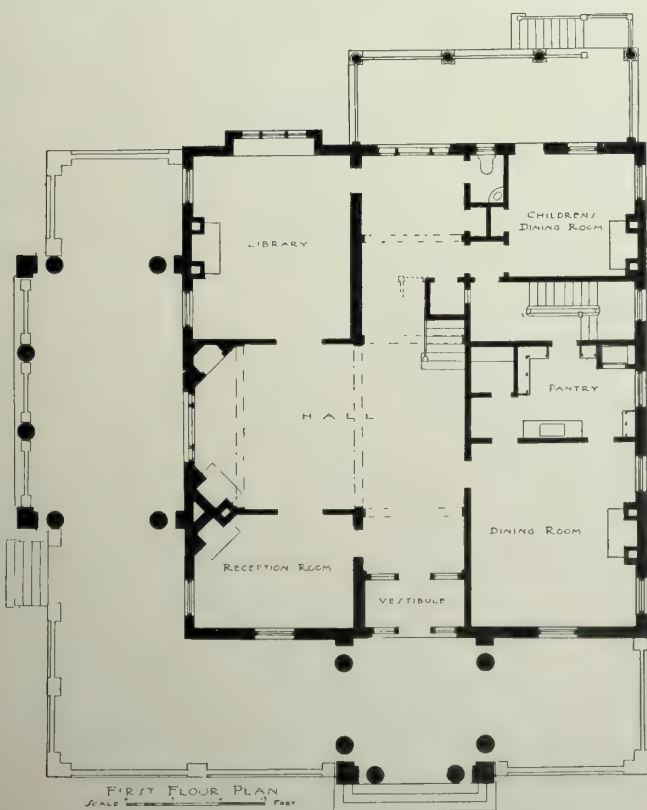


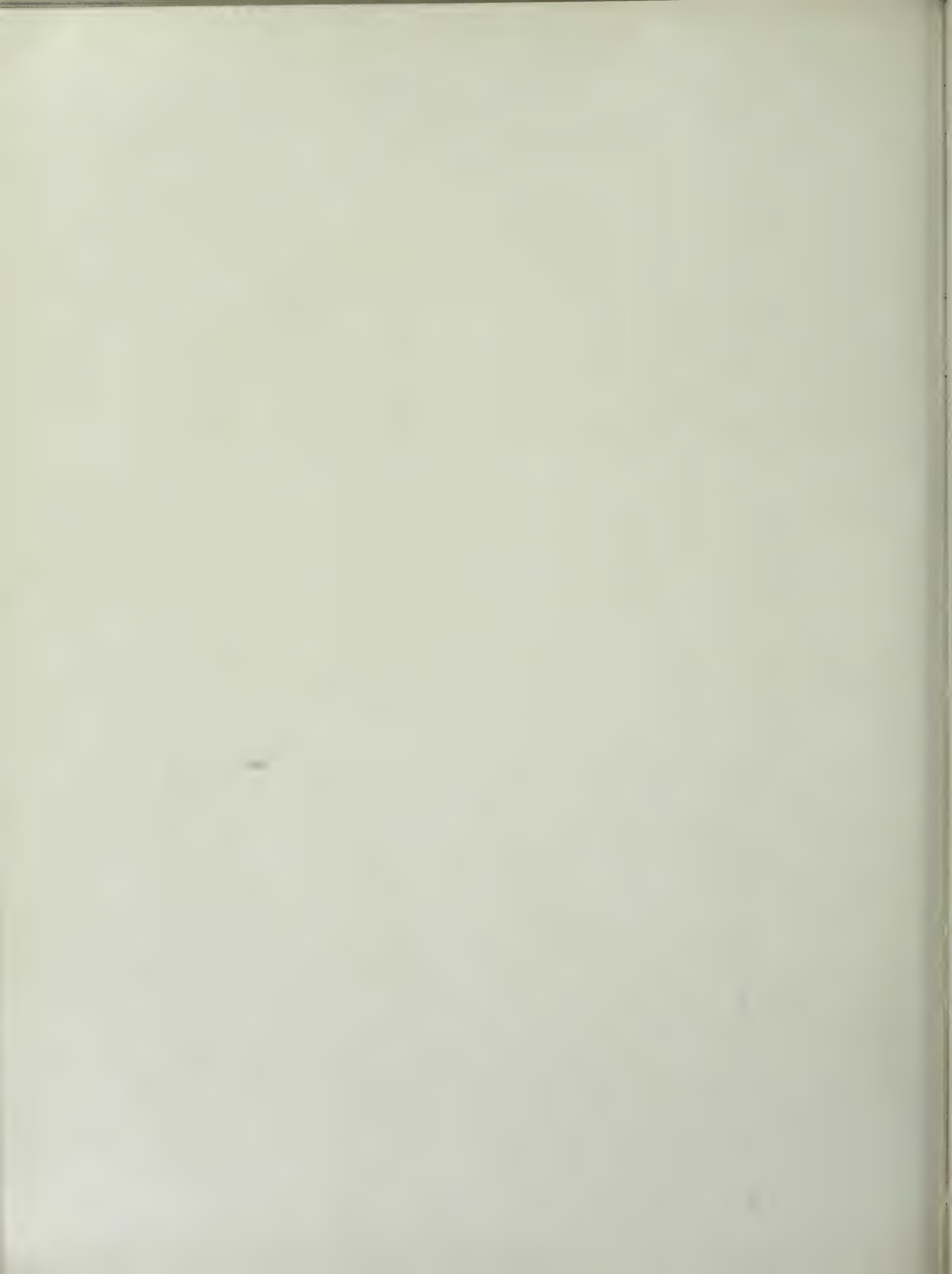
FIRST FLOOR PLAN.

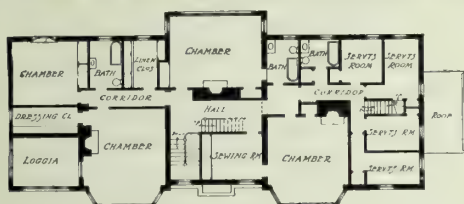




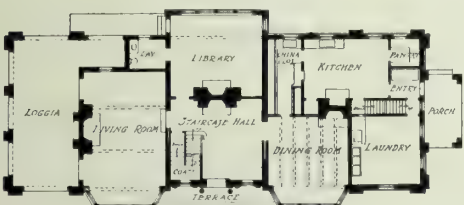
HOUSE AT ROLAND PARK, MD.
WYATT & NOLTING, ARCHITECTS.







SECOND FLOOR PLAN



FIRST FLOOR PLAN

HOUSE AT DOVER, MASS.

P. B. HOWARD, ARCHITECT.

PLANS AT RIGHT
HOUSE AT CONCORD.

PLANS AT LEFT
HOUSE AT DOVER



SECOND FLOOR PLAN

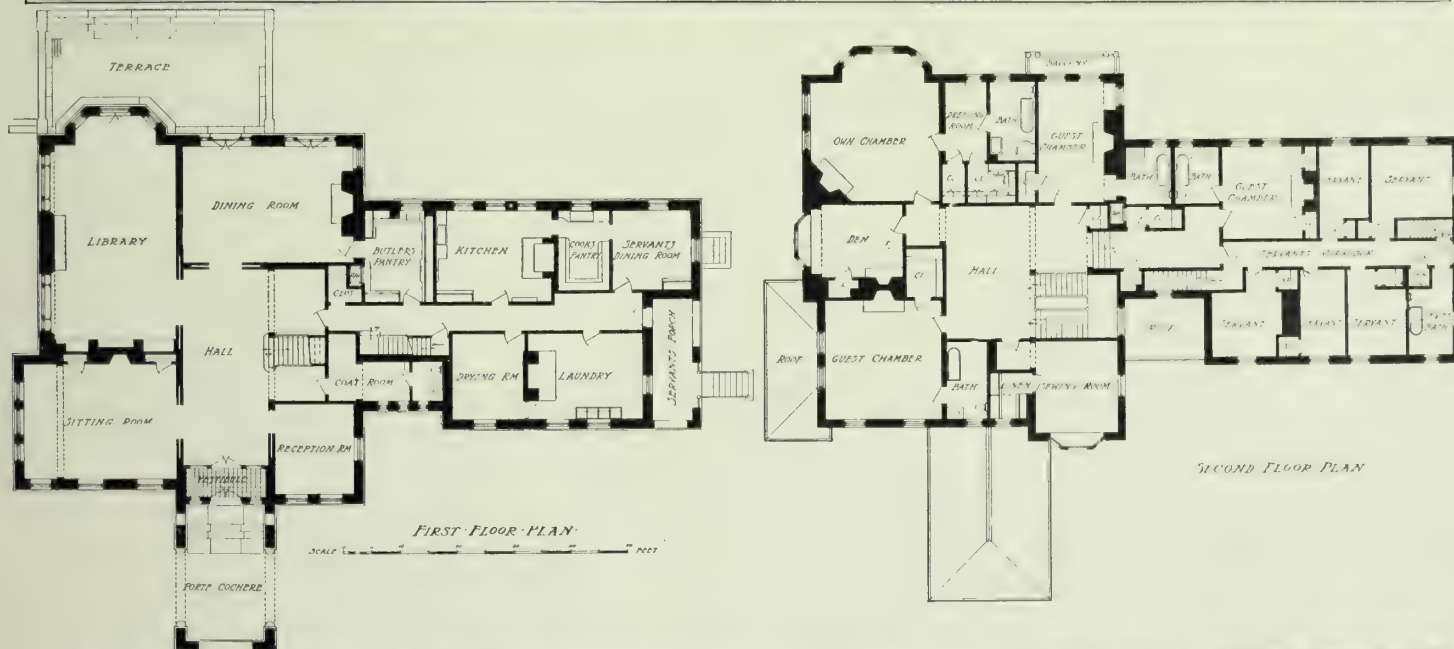


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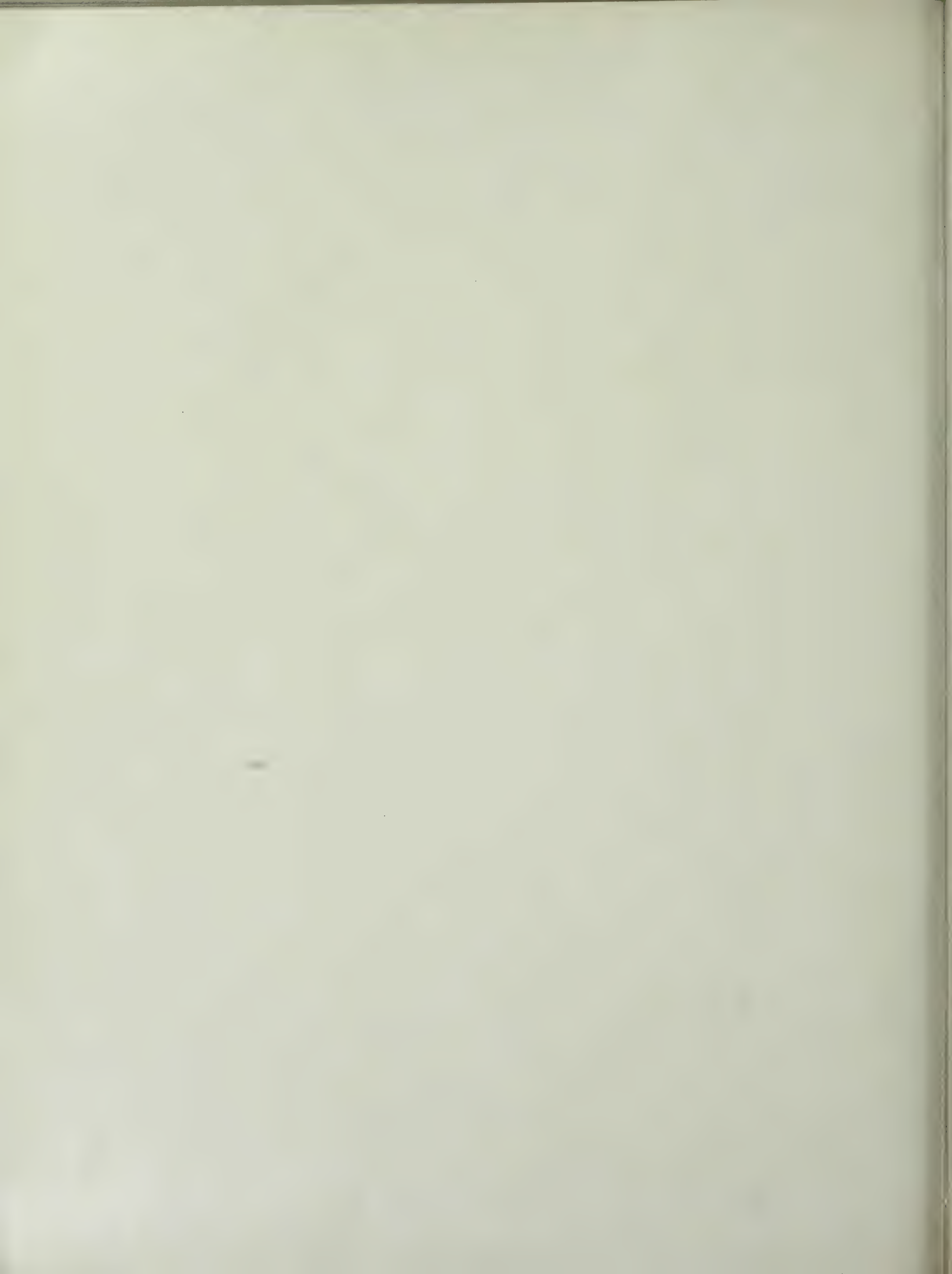


HOUSE AT CONCORD, MASS. HOWARD & DUDLEY, ARCHITECTS.





HOUSE AT NEW HAVEN, CONN
PEABODY & STEARNS, ARCHITECTS.



THE BRICKBUILDER

VOLUME XVII

AUGUST 1908

NUMBER 8

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APSES, CISTERCIAN MONASTERY, CHORIN, GERMANY.

THE BRICKBUILDER

VOL. 17 NO. 8 DEVOTED TO THE INTERESTS OF ARCHITECTURE IN MATERIALS OF CLAY AUGUST 1908

Armories for the Organized Militia—III.

BY LIEUT.-COL. J. HOLLIS WELLS.

(Concluded.)

THERE are three departments which have not as yet been touched on. The Surgical Department may be located on a floor above the colonel's quarters. This department requires not less than three rooms: one, the main office in which the regimental surgeon has his locker, the examining room, in which are the lockers of the assistant surgeons, and the room for the hospital corps. Ample locker and closet space must be laid out for this department and they should also have a toilet room.

The ordnance officers require one room of about three hundred square feet, and last, but not least, the commissary should have plenty of room.

The social side of the National Guard officers' life is not so great but that some consideration should be given to his comfort. The commissariat is his chief delight after his duties are over. The commissary should have a small office and a large reception room, where the entire board of officers may gather. It is not too much to expect that he should have a pantry and small store room with an ice box handy, and, of course, room for other things.

The field music and the band should each have a couple of rooms, located anywhere, the farther away the better.

The furnishing of an armory requires much careful consideration. Nothing but the most substantial of materials should be used. Imitations are expensive, the real goods are cheaper in the long run.

Wood floors should have rugs or carpets in most of the principal rooms. Cork carpet runners are satisfactory in locker rooms.

Desks, tables and chairs should be specially built to match the trim. Elaboration of detail is not necessary, but it is a mistake to stint.

After the armory is built and furnished it requires care, else it soon deteriorates. The state of New York, after much experience, has decided that it pays to keep its armories up, and working under section 177 of the Military Code, no fault can be found with their up-keep. It may perhaps be of interest to quote this section, which reads as follows:

"There shall be allowed for each armory one armorer, and if the armory be heated by steam one engineer; there shall also be allowed for an armory occupied by a regiment, by a battalion not part of a regiment, by a battery of light artillery, by a troop, or by two or more separate batteries or companies one janitor; and the

armorer, the engineer and the janitor thus authorized shall be appointed by the ranking commanding officer of the organization or organizations quartered in the armory. Where a signal corps, troop, battery of light artillery, or the headquarters of a brigade occupies a portion of an armory such troop or battery of light artillery shall also be entitled to an armorer and a janitor, and such signal corps or brigade headquarters shall also be entitled to an armorer, who shall be appointed by its respective commanding officer, and such headquarters and quarters shall be considered an independent armory, upon the approval and certificate of the commanding officer of the brigade within whose district such armory is located, which shall be filed with the disbursing officer of the county in which such armory is located. The armorer shall, under the direction of the officer appointing him, take charge of the armory, arsenal and places of deposit of the regiment, battalion, troop, battery, company, signal corps and brigade headquarters, and of all uniforms, arms, equipments and other property issued under the provisions of this chapter therein deposited, and discharge all duties connected therewith as shall be, from time to time, prescribed by such commanding officer. The special duty of the engineer shall be to take charge of the heating apparatus, and the janitor shall take care of the armory, the cleanliness thereof and of the furniture, fixtures and property therein. To provide for the proper care and cleanliness of armories and arsenals and of the property therein deposited, the commanding officer of a regiment, battalion, not part of a regiment, troop, battery, company, signal corps, or brigade, or the ranking commanding officer, where two or more separate batteries or companies are quartered in an armory, may appoint laborers as follows: for armories or arsenals having ten thousand square feet of floor surface, one laborer, where the floor surface exceeds twenty thousand square feet, two laborers, and for each thirty thousand square feet in excess of twenty thousand, an additional laborer; such computation of square feet, to include all drill-rooms, administration and meeting rooms, drill-sheds, hallways, rifle range and lavatories, but excluding such cellar-rooms, boiler rooms and store-rooms as are not included in the foregoing classification and excluding armorers' and janitors' quarters. Before any such appointment is made, the necessity for the employment of such laborer or laborers shall be certified by the

commanding officer of the brigade, and such certificates shall be filed in the office of the disbursing officer of the county in which the armory is situated. A certificate of the number of feet of floor surface of each armory in which laborers are appointed shall be made by the engineer of the brigade and approved by the commanding officer of the brigade within whose district such armory is located, and filed in the office of the disbursing officer of the county in which the armory is located. Such persons so appointed shall receive compensation for the time actually and necessarily employed in their duties, to be fixed by the commanding officer appointing such persons as follows; when employed in armories or arsenals located in cities, armorers, janitors and engineers not to exceed four

dollars per day unless the city has a population of less than two hundred thousand, in which case such compensation shall not exceed three dollars per day, and two dollars per day in armories not located in cities; laborers not to exceed two dollars per day, which compensation, as certified to by the commanding officer appointing such persons under the provisions of this section, shall be paid monthly, and shall be a county charge upon the

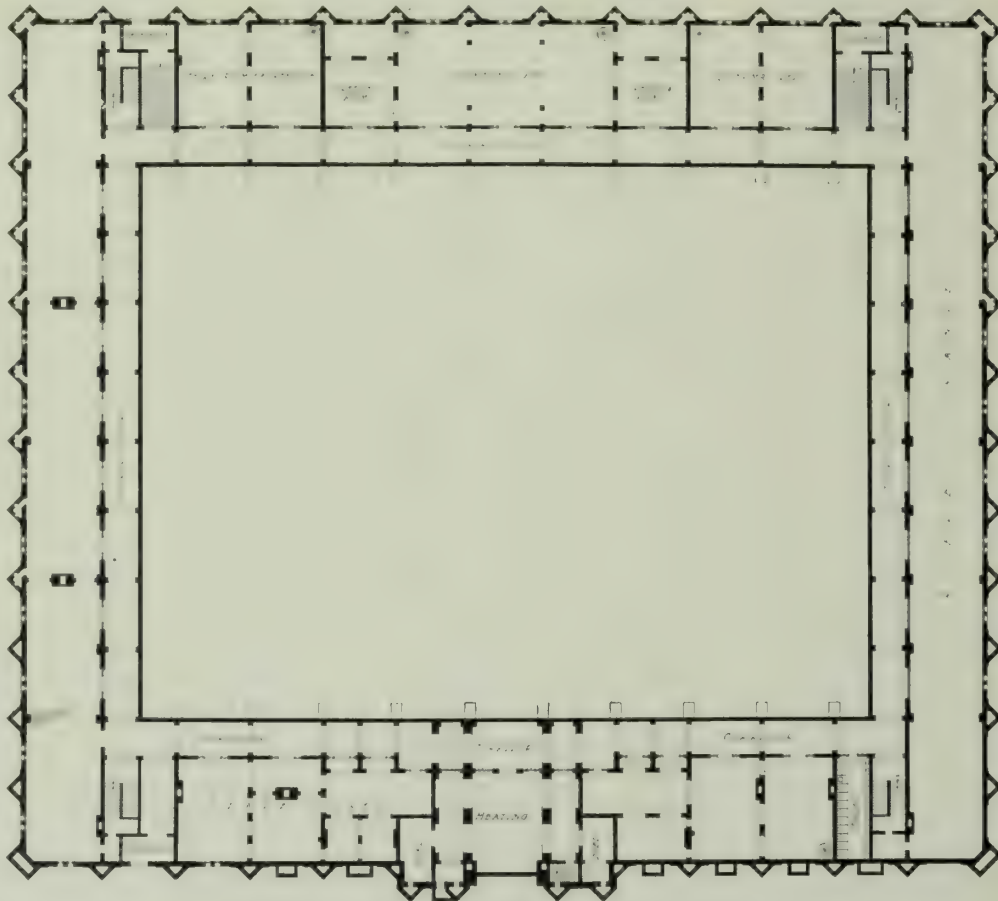
county in which such armory or arsenal is situated, and shall be levied, collected and paid in the same manner as other county charges are levied, collected and paid. A commissioned officer shall not be eligible for appointment to and shall not hold the position of armorer, janitor, engineer or laborer in any arsenal or armory."

STATE ARSENAL AND ARMORY, HARTFORD, CONN.

The building, as its name implies, is to be used for the business offices of the military organization of the state, containing in the central portion of the head house, principally on the first floor, the offices of the adjutant-general and his assistants, the quartermaster-general, pay corps, medical department and pension department. The remainder of the head house and wings is occupied

by the pavilions and equipment rooms of the various companies of the 1st regiment of the state of Connecticut, together with the naval battalion, signal and hospital corps and machine gun crew, the executive offices of the regiment being located on the second floor of the head house over the main entrance, including the rooms for the colonel, field and staff officers, library, meeting rooms, etc. In the basement is located the gymnasium for the use of the regiment, with necessary toilet, wash and shower rooms for both privates and officers with a plunge tank placed between the two series of rooms. There are also quarters for the band, the armorer, and large squad drill room, which would also be used on public occasions, such as the inauguration ball in honor of the

governor, as a supper room, with necessary kitchen and pantry store-rooms adjacent. The drill shed is placed on the first floor, the basement under same being reserved for storage rooms of the arsenal department of the state and the various companies of the regiment. A gun repair and reloading room is placed in the subbasement in conjunction with the firing room and ranges for both rifle and pistol practice. Quarters for both the janitor of building and armorer



BASEMENT PLAN, FIFTH REGIMENT ARMORY, BALTIMORE.

Wyatt & Nolting, Architects.

of the arsenal stores are placed in the roof pavilions. The drill shed, which is the largest in the state, is 185 feet wide by 267 feet long, with an observation gallery reached from second floor at the south end with returns on the side opposite the head house wings. Each company has a parlor on the first floor with private stair from each to the equipment room on the second floor above and a tier of three small company officers' rooms reached from the landings of these stairs. The building has concrete foundations which, owing to the nature of the soil, were very complicated and deep, particularly at the south end. The roof pavilions are covered with slate but the drill shed and the flat decks of the head house are covered with slag roof. The drill shed is separated from the head house by metal-covered doors and trim,

but the trim throughout the head house is quartered oak with cement floors in all public passages and rooms, with wood floors in offices and parlors. The floor of the drill shed is of maple.

ARMORY FOR SECOND BATTALION, NAVAL MILITIA,
BROOKLYN.

The armory for the Second Battalion, Naval Militia, is situated at Fifty-second Street and New York Bay in the Borough of Brooklyn. It was built by the city of New York for the occupancy of the Second Battalion, Naval Militia, of New York state. The building has been completed and occupied by the battalion only within the last few months. The battalion is comprised of six divisions somewhat similar in character and size to the companies of a regiment, each division having a distinct individuality.

The appropriation for the building being moderate and the required accommodation and drill space being large, the most rigid economy was necessary throughout. For this reason the building has been made a practical working armory with the result that, in proportion to the accommodations furnished, it has cost less than any armory built in New York in recent years. The equipment, however, is complete and substantial.

The armory consists of an administration portion, which is concentrated at one end of the drill shed. The space under the drill floor is only partially excavated, and it is used for storage rooms, magazine, boiler room and rifle and revolver ranges. The drill floor is one of the largest in the city. Its construction is of the mill or slow-burning type. The administration portion of the building is constructed fireproof. It contains a meeting and locker rooms for each of the divisions of the battalion and for its band, a general ward or meeting room and public and private offices for the different officers of the battalion.

The exterior of the building is of common brick with

decorative features of terra cotta, and an effort has been made in the design to avoid useless and archaic features and yet give the building a distinctly military character.

An interesting feature of the drill shed is its equipment with an officers' bridge, two military masts with semaphores and other appliances for signalling. Another interesting feature, and one which received special commendation from the commission recently appointed by Governor Hughes to investigate the armories of the state, has been the standardization of the decorations in the division rooms and other meeting rooms in the building. These have been finished throughout with wainscots to the ceiling of oak planks and with mural paintings in the ward rooms showing the development of the warship

from the earliest times; and in the other rooms depicting the most important events in the history of the American Navy.

The paintings throughout are by Ralph T. Willis and are of very high merit, — indeed, they are one of the most interesting series of mural paintings in this country.

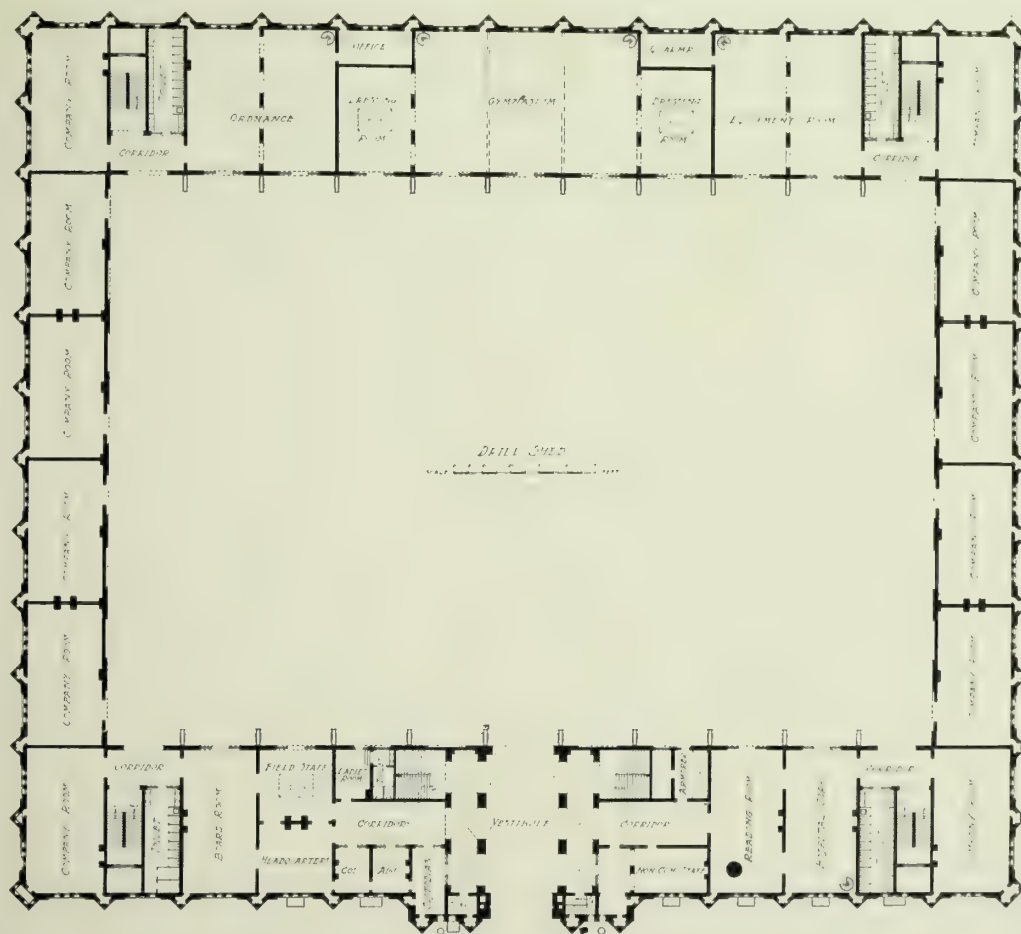
FIFTH
REGIMENT
ARMORY,
BALTIMORE.

The building occupies a plat approximately 310 x 360 feet, open on all sides,

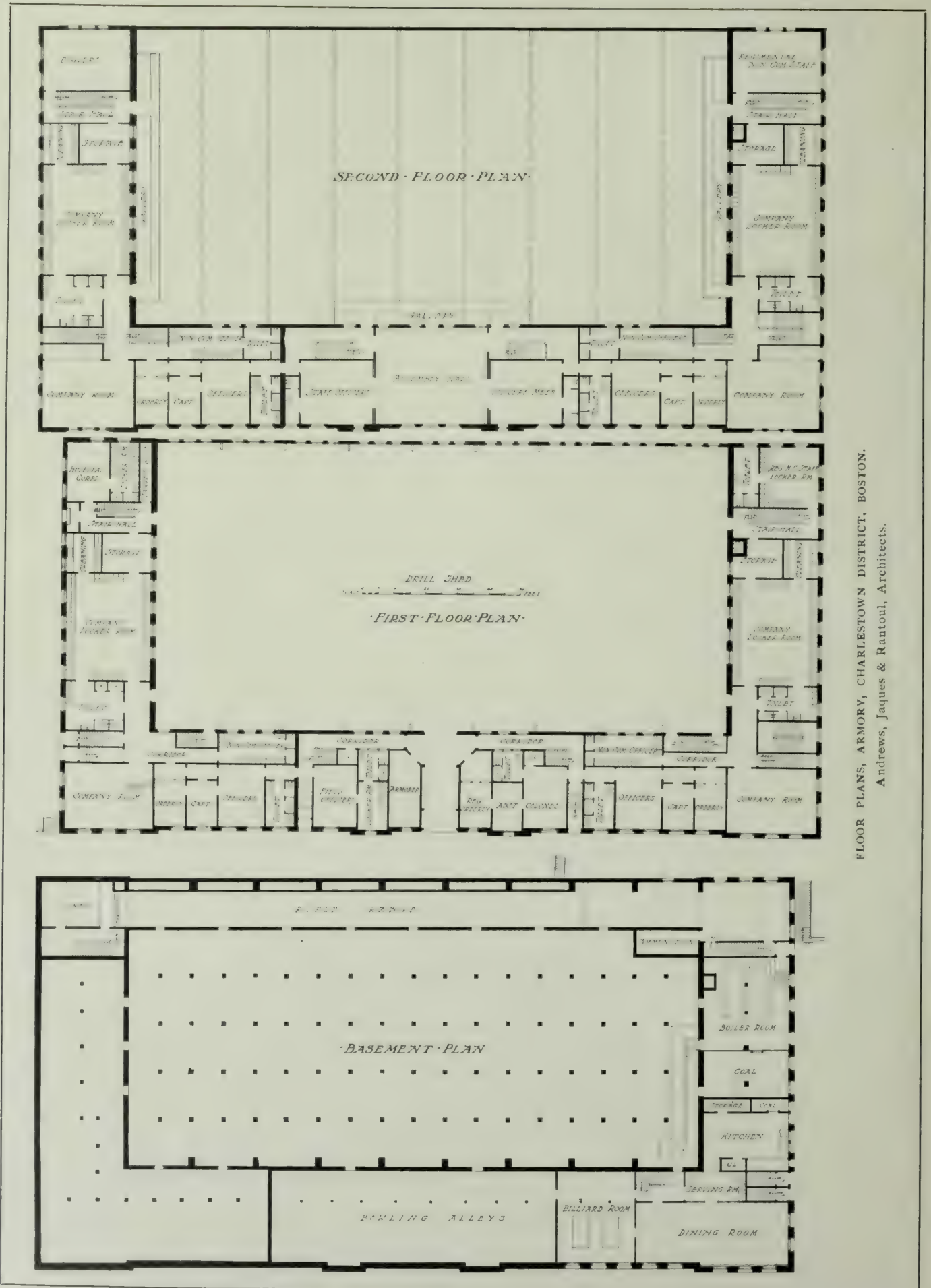
the main entrance forming the central feature on one of the long fronts.

The drill hall, 200 x 300 feet, is central to the entire building, and is surrounded on all four sides by smaller rooms. The various headquarter offices, reading room, board room and room for the hospital corps are in the front, and are approached both from the drill hall and from the entrance vestibule; the company's rooms, twelve in number, are at either end, completely occupying the two sides of the building, the rooms are all entered from the drill hall direct; the space between the drill hall and the rear of the building is occupied by the gymnasium, dressing room, rooms for the quartermaster and ordnance.

There is no cellar under the drill hall and the



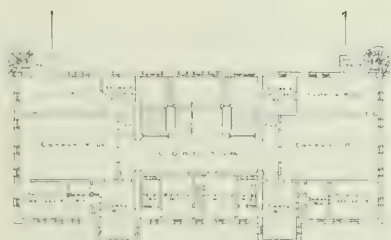
FIRST FLOOR PLAN, FIFTH REGIMENT ARMORY, BALTIMORE.
Wyatt & Nolting, Architects.



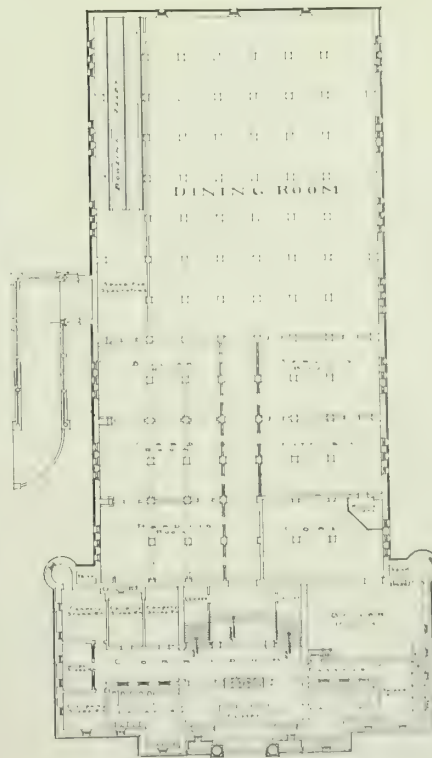
FLOOR PLANS, ARMORY, CHARLESTOWN DISTRICT, BOSTON.
Andrews, Jaques & Rantoul, Architects.



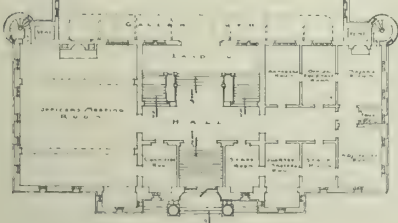
DRILL SHED



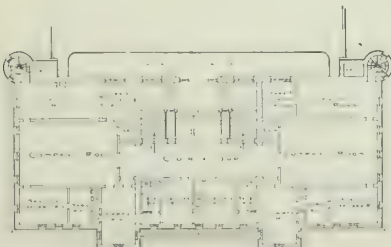
THIRD FLOOR PLAN
THIRD FLOOR



DINING ROOM



FIRST FLOOR PLAN



SECOND FLOOR PLAN
SECOND FLOOR

ARMORY FOR THE CITY OF CAMBRIDGE, MASS.
Hartwell, Richardson & Driver, Architects.

entrance side; the space under the rear and the side rooms is used as rifle range (three hundred feet long), general heavy storage for quartermaster's department, bowling alleys and billiard rooms, dining-room, kitchen, etc., for the men, ambulance stable and the mechanical plant.

The drill hall is 106 feet high to the center of the roof, with a wide gallery on the two long sides.

In addition to the main entrance there are three exits from the main and basement floors.

The stairs are placed at the entrance and near the four corners of the building. The general toilets are placed near the four corners.

The contents in cubical feet, about 6,000,000.

Cost, including architects' fees, \$300,000, or about five cents per cubic foot. The building is not fireproof.

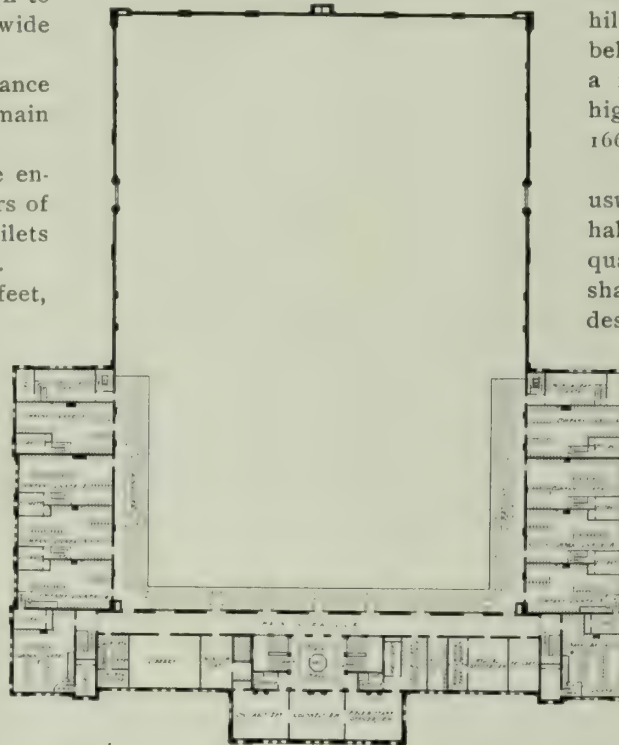
ARMORY FOR THE SECOND BATTERY, NATIONAL GUARD OF NEW YORK, N. Y.

Two years ago, as the result of a competition among six New York firms, Charles C. Haight was selected as architect of the Second Battery Armory,

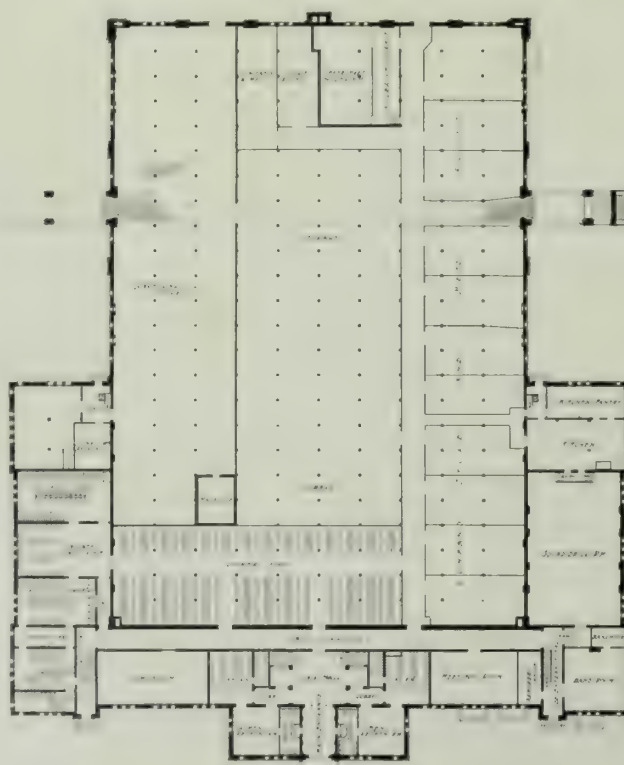
National Guard of New York. The building is to be in the Bronx to the east of the Third Avenue Elevated. Here 166th Street is deflected by the spur of a rocky hill and this is the site, an irregularly sloping rectangle approximately 200 by 300 feet. Franklin Avenue is the

western boundary, and beyond, the hill drops off abruptly to a street below like a *glacis* at the foot of a fortress. To the south on the higher level is a continuation of 166th Street.

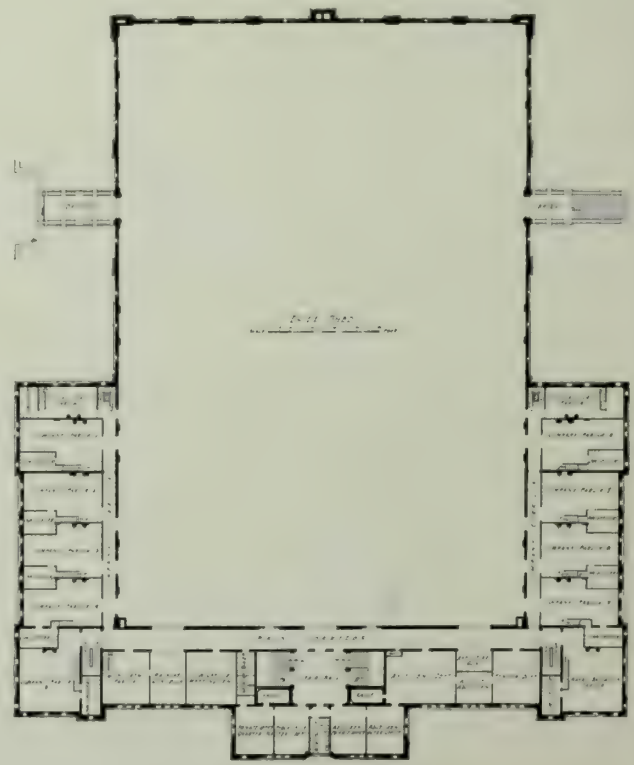
The problem demanded an unusually compact plan. The drill hall alone was to be more than three-quarters of the plot in area. In shape, length rather than width was desirable, so a hall the extreme length of the ground seemed best, and the narrow strip left at the side suited the numerous smaller rooms for administration and receptions, for officers and men with their showers and lockers, for meeting rooms and so forth, with no shaft required to light them; but it proved awkward in the case of the wider squad room and gymnasium on the third floor, for it meant the superposition of rooms 38 feet in width on



SECOND FLOOR PLAN.



BASEMENT PLAN.



FIRST FLOOR PLAN.

STATE ARSENAL AND ARMORY, HARTFORD, CONN.

Benjamin Wistar Morris, Architect.

those of only 30. Accordingly the floor was continued beyond the inner wall as a cantilever, so that the rooms project eight feet over the spring of the drill hall roof. Furthermore, the area of the plot was insufficient for stables and gun room on the drill-hall level. They were placed below it and joined to it by a passage-way of easy slope, permitting guns and caissons to be limbered below and driven up in proper formation.

As it passes the armory, upper 166th Street rises twelve feet and this determined the levels of drill hall and stables.

From the upper level an archway opens on the drill hall and from the lower another leads to the stables, the two floors being each entirely independent as regards entrances or exits; the horses may be taken outdoors for exercise without entering the drill hall, nor need any service pass through it, and when drills are not taking place it may be closed. Then, too, on account of the sloping street and a shallow area part way along them, the stables receive the necessary sunlight.

In æsthetic expression the armory is a departure from the "school" type in the complete elimination of heavy cornices and quoins and the

suppression of the high glass roof. The site suggested the effectiveness of vertical masses, and these with a carefully studied sky-line gave the expression desired. Wide piers where strength was needed and a multiplicity of windows in the curtain walls between, the armory became an idealized type of "mill construction," with the vital difference that here the piers did not merge into a flat cornice but rose above the curtain walls, a Gothic princi-

ple evident in the city walls of Aigues-Mortes and Carcassonne or in Warwick, Dover and other English castles. The silhouette against the sky, prominent through the building's high situation, has been perhaps the most carefully studied element of the façade, and on it the success of the exterior in a great measure depends. In short, its merit is in the composition of its masses of dark red brick with little or no ornament and a sparing use of sandstone.

The programme required a sighting range and signal

station for communication with other armories, and to provide it, the southwest corner closing the axis of lower 166th Street has been developed as a tower overlooking the city to the west and south. Lower 166th Street ends at the foot in a formal flight of steps connecting with the upper level, and since this is the natural approach, the corner tower became the principal entrance. A high vaulted hall leads to the "staircase of honor," and this past the privates' to the officers' quarters and reception rooms, the reviewing stand and a spectators' gallery four seats deep surrounding the drill hall, all on the second floor level. The several entrances and stairways



DETAIL OF MAIN ENTRANCE.

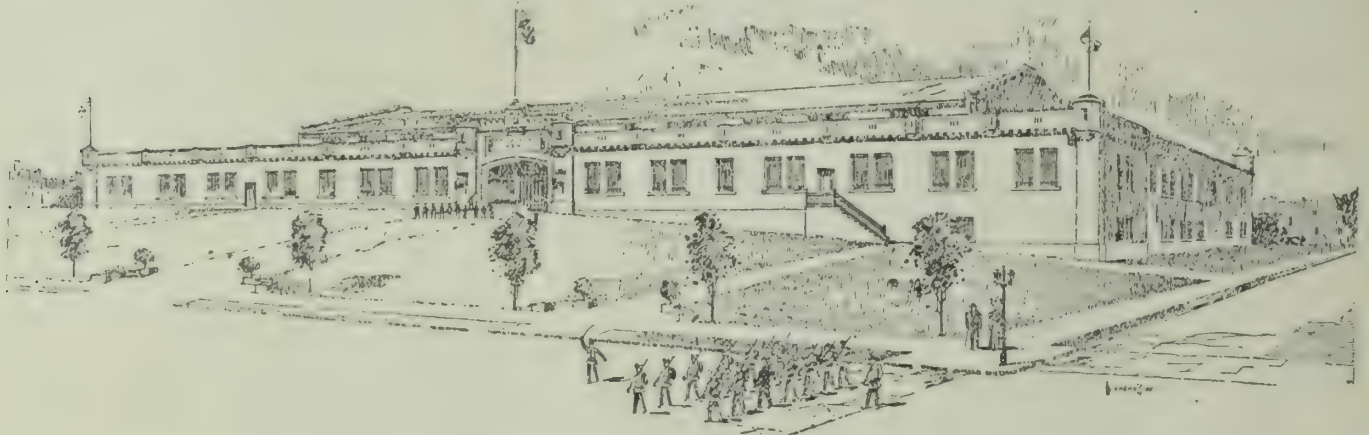
ARMORY FOR TROOP C, BEDFORD AVENUE, BROOKLYN.
Pilcher, Thomas & Tachau, Architects.

for the public have been so arranged that a visitor's first sight of the riding hall is from the gallery. It is a vast hall, nearly a hundred yards long, with iron roof trusses one hundred and sixty-seven feet in span. The gallery is hung from the trusses by iron rods, so there are no columns to interrupt the riding hall below. The roof is of concrete plates with center skylights; the walls of exposed brick; four staircases empty the gallery and they

are so arranged that in case of panic there can be no possible confusion between spectators and the horses and guns.

The third floor is taken up by a general reception

and services necessary for receptions and battery reunions. The upper stories of the tower are given up to additional officers' rooms, janitors' rooms and so forth; the basement contains, besides the gun room and stables,



FIRST REGIMENT ARMORY, ST. LOUIS.
Eames & Young, Architects

room, a squad room and gymnasium. Here are to take place the chief social functions. Wide doorways connect the rooms so they may be thrown together en suite, and because of the high ground the windows overlook surrounding buildings. At the back are a small kitchen

the various store rooms, services and a seventy-five-yard firing range, fitted up for both gun and small-arm fire.

The New York Armory Board appropriated \$450,000 for the armory and the lowest estimate was within the appropriation.



DRILL HALL, SEVENTH REGIMENT ARMORY, NEW YORK CITY.
Clinton & Russell, Architects.

The American Theater—IX.

THE STAGE.

BY CLARENCE H. BLACKALL.

THE real mystery of the theater lies behind the curtain. There is the enchanted region which is so alluring to the spectator and which holds so closely those who have fallen under its sway. There is fascination in the mere thought of going behind the scenes, and to the uninitiated the processes by which seeming effects are evolved have a very complicated appearance. As a matter of fact, the stage of the American theater is an extremely simple affair. The beauty of it is that such a variety of effects are obtained so easily and with what is, after all, so very little machinery. The stages of theaters abroad are, by comparison with ours, very complicated, and in other countries a mass of machinery is employed which we find entirely unnecessary, and in fact a detriment rather than a help, as will be seen by comparisons which we will make later.

There are a few terms used in describing stage fitting which require some explanation. In the old days, when traveling companies and long runs were unknown, a prompter was stationed in the first entrance about in the position now occupied by the switchboard. Hence that side of the stage was designated "prompt side," and the opposite side of the stage was called the "O. P." or opposite prompt side. The prompter, as a feature in American dramatics, has practically disappeared, being replaced only in part by the stage manager, who attends to many other things besides cues, and is not infrequently given a part in the cast, but "prompt" and "O. P." still remain as designations, the prompt side being the side on which the switchboard is located, — usually the right. In some theaters the switchboard is on the left of the stage and there seems to be an uncertainty in that case just how to apply the terms "P." and "O. P." In the French theaters there will be found still a protuberance in the center of the stage, in front of the curtain line, resembling a huge cockle shell with the back towards the audience. Towards the curtain it reveals a stand on which is placed a copy in large print of the music or the part that is being played and the pages are turned by an unseen attendant from below. Sometimes the prompter, or *souffleur*, reads the parts in

an audible whisper and foreign artists seem to find this personage quite indispensable. A *souffleur's* box has to be rigged up quite frequently for grand opera and Sarah Bernhardt's companies always have insisted on it, but it finds scant favor here.

"Right" and "left" of stage refer to right or left of the actors as they face the audience. "Up stage" means the depth measured toward the rear from the curtain line. The apron is the portion of stage beyond the front of the curtain, often cut away underneath for the orchestra. The distance measured up stage is divided arbitrarily, as previously explained, into entrances, spaced about seven feet on centers. The first entrance

is formed by what are called the "tormentors," which are flat pieces of scenery braced up from the floor and serving to mask in and diminish the total width of the stage opening. Draperies suspended from above corresponding to the tormentors are called the "tormentor draperies." A "border" is a row of lights suspended from the grid-iron in front of each entrance, and the term is also applied to a piece of scenery hung from above to simulate a sky line. A "drop" is a piece of scenery forming the back of the scene and suspended from above. A "flat" is a piece of scenery mounted on a light framework of wood held by braces screwed into the stage floor.

The "sink lines" are the lines of the longitudinal girders each side limiting the movable portions of the stage floor, including

a width across stage of one or two feet each side more than the curtain opening. The sides of stage floor beyond the sink lines are called the wings, sometimes also designated as the off-stage space. The excellent German scheme of having an extension of the stage in rear is seldom possible in this country on account of the limited area of land usually available, but when circumstances will permit, it is highly desirable. The extension should be as wide and high as the curtain opening, can be used for storage of properties and scenery and for lighting effects, and for lack of a suitable English equivalent is commonly designated by its German name, "Hinter Buhne."

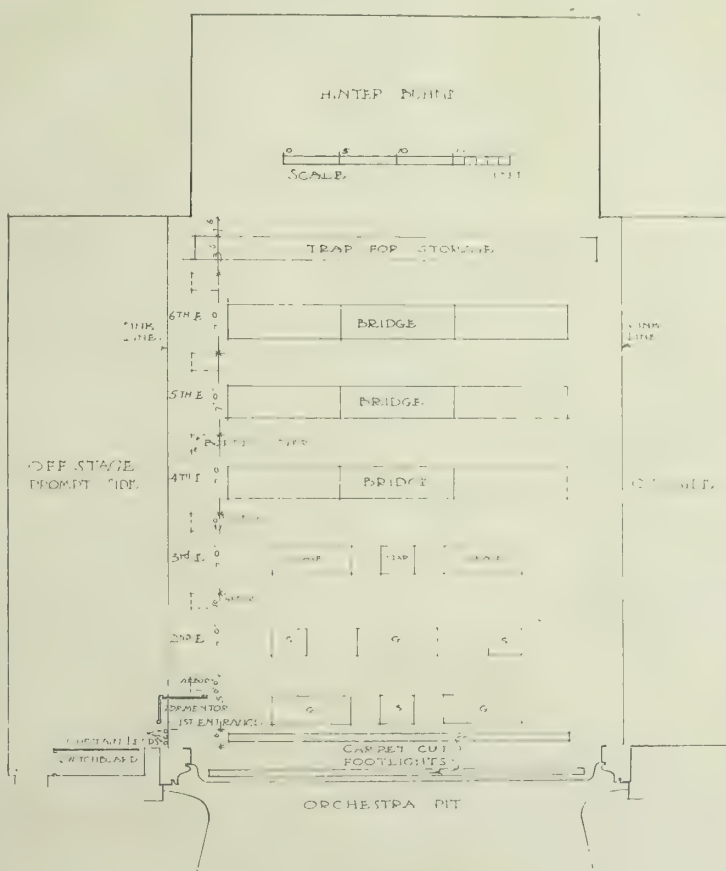


FIG. 1. TYPICAL STAGE PLAN.

"Cuts" are slots across stage, rarely used with us. A carpet cut about six inches across is, however, desirable, just inside the curtain line, permitting a carpet to be drawn up over the stage floor from below and held taut across the front by closing the hinged cover into the carpet. Another cut at the extreme rear is desirable, two feet across and the full width between sink lines, to permit of lowering scenery and drops for storage under the stage.

"Traps" are openings in the stage floor through which a person can be raised or lowered out of sight. "Bridges" are sections of the floor of a stage so arranged that they can be raised to varying levels. "Arbors" are vertical poles which work in transverse slots running across the stage, these arbors sometimes being on small trucks under the stage. To these arbors isolated pieces of scenery can be attached. The only advantage of these is that for a transformation the arbor and the scenery to which it is attached can be slid off at the sides without the operator being seen.

Up to a comparatively few years ago all flats and side scenery were made of uniform height, sliding on trucks at the bottom and in grooves at the top, like an ordinary sliding door. These grooves, called "*coulisses*" on the French stage, were arranged in groups under each border, so that the flats enclosed the entrances. Such construction is still in use in some of the older vaudeville houses, and occasionally for the tormentors, but the grooves constitute a clumsy device at best and our scenery is now either built up and lashed together in box form, or braced to the floor with extension braces.

The stage in European theaters is habitually sloped up towards the rear at the rate of one-half inch to the foot. As a rule our stages are built level and the few exceptions have not been satisfactory. The galleries on each side of the stage from which the scenery is operated are called "fly galleries." The light lattice floor over the stage to which are attached the running blocks for the scenery ropes is called the "gridiron," the space above it to the under side of the roof being termed the "rigging loft." The bridge connecting the two fly galleries across the rear of the stage is called the "paint

bridge." It is often omitted in theaters, as its sole purpose is to serve the scene painter, who works with his canvas suspended on a movable frame against the rear wall, hoisting and lowering the whole scene as he needs to reach any portion thereof.

The size of the stage is governed a good deal by the character of the house, but it may be said in general that while many stages are too small, none of them are too deep and few of them are too wide. For vaudeville or for light dramatic performances a stage thirty feet deep from the curtain line could be used, but the ordinary theater to-day is made as near fifty feet as the cir-

cumstances will allow and should never be less than forty in depth. The usual custom is for all of the scenery for the given production to be kept on the stage as convenient for use as possible. The drops, borders, ceiling pieces and even some flats are suspended from the gridiron, but there is always a lot of scenery which has to be stood on edge against the wall surrounding the stage. Consequently when the total width is more than ninety feet the stage hands have to do a good deal of walking to set and strike a scene and a greater width than that is not desirable in any theater, except as it may be planned specially for very large and cumbersome performances.

The width of the curtain opening is to a certain extent a function of the total available width of the auditorium, but most stage managers object to excessive widths, and forty feet is about a fair average for a first-class combination house.

For vaudeville or for stock houses presenting light dramas or comedies it is too much. The height of the curtain opening varies from thirty feet up. It was formerly quite the custom to mask this opening by a fixed drapery hung outside of the curtain, but of late years the custom has been to lift the curtain entirely free of the whole opening, showing no draperies at all except the tormentor draperies. This means that the curtain must be lifted the whole height of the opening, and the height of this opening is, of course, a factor of the design of the auditorium, but is usually not less than thirty feet. The tendency of American practice is to make it too high.

The portion of stage floor between the sink lines must

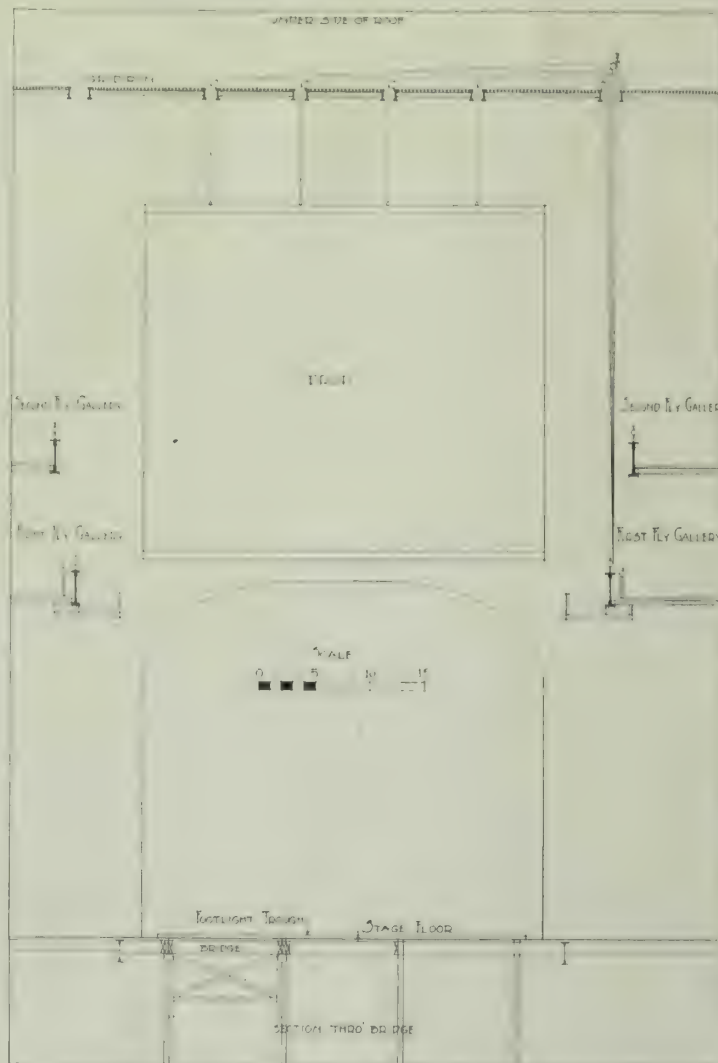


FIG. 2. TYPICAL STAGE CROSS SECTION.

be so arranged that a trap or opening of any sort can be cut at short notice in any entrance. The building laws of most of our cities allow this construction to be entirely of wood. The illustration (Fig. 4) shows a typical arrangement. The beams are of hard pine, mill planed, continuous for the whole span between sink lines, and braced by 3 inch by 6 inch wooden uprights at three points under each beam. The typical stage plan shows an arrangement of traps which answers the usual requirements, namely, three in each of the first three entrances. The square openings are called "star traps," the oblong ones "grave traps," and for each the construction consists of a movable platform much like an ordinary dumb waiter, sliding up in four corner guides, counter-weighted, and hoisted by ropes attached to the bottom of the frame and running over wheels at top of the guides. The stage floor over the trap is cleated together, resting on runs on the sides of the floor beams. By dropping the out-board ends of the runs the flooring over trap can be slid to one side under the adjoining stage floor, allowing the trap to ascend flush with the floor. It is also usual to fit up the rear entrances with bridges, three in width to each entrance. These are simply sections of the floor resting on framework which can slide up or down in guides below the stage and can be set and held at any desired height or depth, or can be set on a slope sidewise. These are used as a ground for stairways, upper stories, mountains, pits, etc.

It is perfectly possible to build the stage entirely of iron, and the greater ease with which the wooden beams can be shifted or cut is not in usual practice of very great advantage, as the bridges are fixtures in any case and are better constructed if of iron, and really very few plays or operas are produced in these days requiring set traps. In vaudeville houses, stages are very commonly framed like any ordinary floor, without reference to any possible traps or bridges. The wearing floor in all stages is a single thickness of one and three-eighths-inch matched rift hard pine.

Most of the foreign theaters and a few of the American ones have a very deep space under the stage, often in several tiers. It is so much simpler and easier to raise scenery than it is to lower it that the excessive under stage is but little used and a depth of more than ten feet is a detriment rather than a help. The best use for the

under stage space is for storage and for properties. The stage of the Stuyvesant Theater, New York, has a large elevator or lift in the center. While a scene is being struck some of the stage hands collect all the properties on the elevator, drop with them to the under stage, exchange them for the properties of the next act and are back with the latter on the stage before the new scenery is set, thus greatly reducing the confusion on the stage and saving considerable time. In a play like Julius Cæsar the properties or movable accessories are quite formidable as compared to the mere scenery, and every foot of space under the stage could be utilized. Ordinarily the space under the stage is only a rubbish hole.

The first tier of fly galleries on each side is set up sufficiently from the stage to give a height of at least 28 feet in the clear underneath. The distance between fly galleries is governed by the width of the widest back drop that is likely to be used. In practice it is well to make this distance 52 feet as a minimum, depending entirely of course upon the kind of house. It is usual in American theaters to have only two tiers of fly galleries, the second one often being set back one foot farther from the center than the first tier so as to allow for play of ropes coming down from above. It is a good idea, however, when practicable, to add a third fly gallery close to the under side of the gridiron for use in special emergencies in shifting the ropes. The front railing of the fly gallery is formed by what is termed the "pin rail." This is generally made with a double row of heavy steel piping, in which are fitted iron belaying pins to which the ropes are hitched. The detail (Fig. 5) shows a construction for this purpose. The working fly gallery is usually on the O. P. side, which is also the side from which the curtain

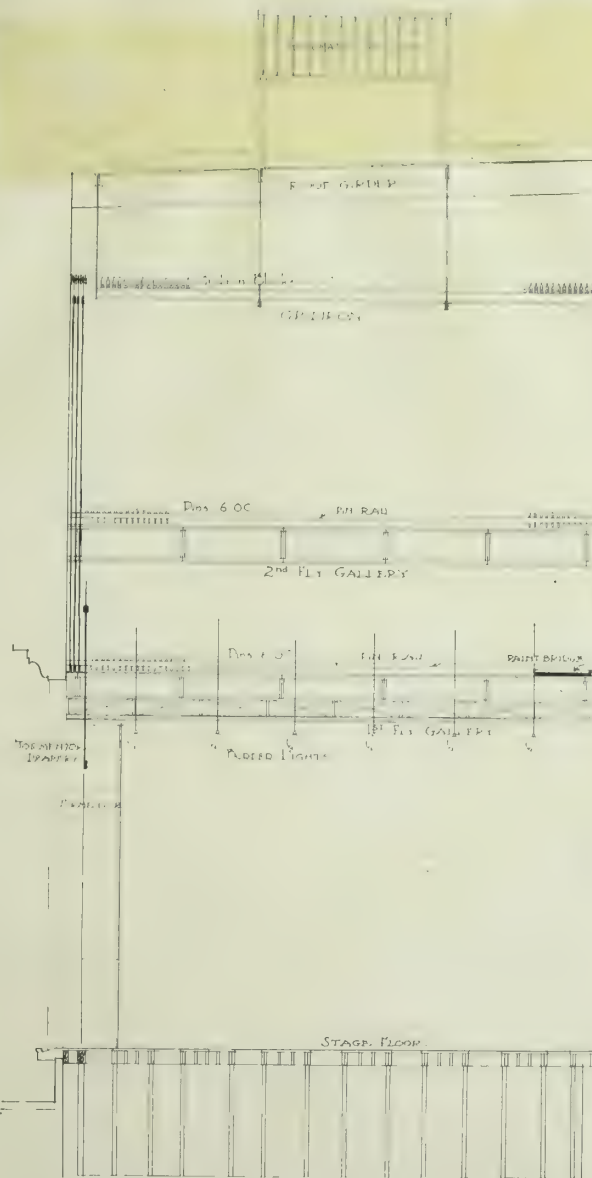


FIG. 3. TYPICAL STAGE, LONGITUDINAL SECTION.

is operated. This is to enable the fly men to be able to watch the stage manager on the prompt side and to receive signals from him. As will be seen later, nearly all the leading ropes are carried down to one side and the rail has to support the entire weight of all the scenery, amounting in some instances to fifty or sixty tons. The strain is all upward and consequently the front of the rail has to be very heavily trussed.

It is an excellent scheme, where practicable, to set back the pin rail on the fly gallery sufficiently to allow a space not less than two and one-half feet outside, pro-

tected in turn by a light guard rail, from which a spot light can be operated, sky borders attached, panoramas carried around and entangled scenery readily reached by poles and straightened out. The width of the fly gallery need only be enough to work the ropes, say eight or ten feet.

The opposite fly galleries of the first tier are connected by the paint bridge, which is supported from the pin rail truss and is usually made so that in an emergency it can be entirely removed without any serious difficulty. It is set off one foot from the rear wall and has a guard rail only on the side towards the curtain. This paint bridge is not required to be very strong but should be able to support a center load of not less than two tons. The paint bridge should be not less than five feet wide. It can be set up, if desired, so that the floor is on a level with the pin rail as it is better to extend the pin rail clear through to the rear wall and not cut it off to give access to the paint bridge.

The drops, borders, border lights, panoramas, etc., are all hung from the gridiron. The illustration (Fig. 2) will make clear the manner in which the scenery is usually supported. Each scene is attached to a wooden batten or strip about four inches wide to which are tied four 1/2-inch manila ropes. Each rope is led up to the gridiron,

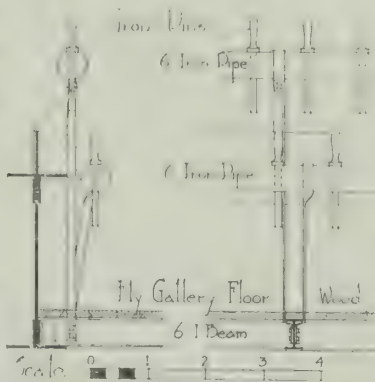


FIG. 5. DETAIL OF PIN RAIL.

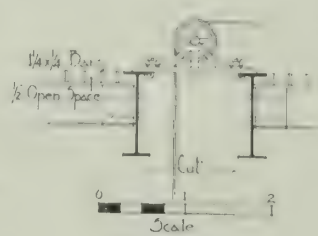


FIG. 6. DETAIL OF GRIDIRON BLOCK.

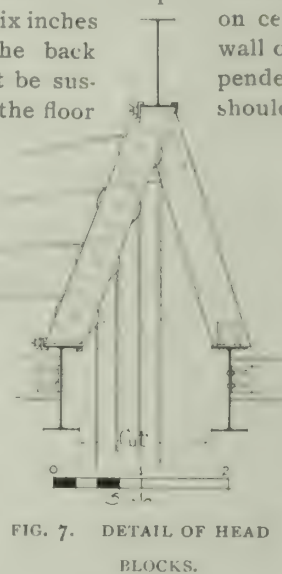


FIG. 7. DETAIL OF HEAD BLOCKS.

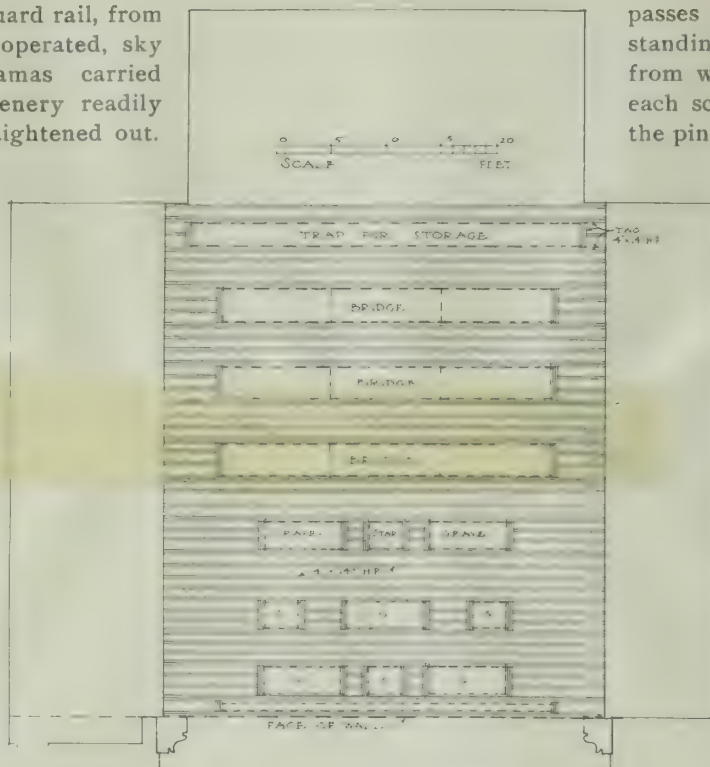


FIG. 4. TYPICAL STAGE FRAMING PLAN.

passes over a pulley across to a standing block on the side (Fig. 7) from whence all the four ropes for each scene are led together down to the pin rail and attached to a single

belaying pin. When the ropes are not in use the ends are brought together, tied to a bag weighted with sand and hoisted out of the way. This is the usual attachment. A better method is to have each set of ropes permanently fastened to a long 1 1/2-inch iron pipe batten and lash the scenery battens to this piping. Of course for very wide scenes as many as six or seven supporting ropes might be needed and on the other hand, for small vaudeville stages three is sufficient.

The gridiron is constructed with longitudinal slots corresponding to the lines of rigging. The

slots (Fig. 6) are formed with I beams spaced ten inches apart, to which are clamped iron or wooden blocks spaced regularly six inches curtain line to the back the gridiron must be suspended from the roof

on centers from the wall of stage. All of should be of lattice work or grating about two inches open, so that extra ropes can be dropped through the gridiron anywhere. Sometimes a slat floor of wood is used over light steel beams, but as the upper portion of

stage has the greatest fire hazard, wood is not desirable.

THE historic plan of Washington which it is generally supposed Major L'Enfant left to posterity should not be laid wholly to the credit of that French Engineer. In a recently published "Life of Andrew Ellicott," who was also a major of Washington's staff, the plan of the city is given as Major Ellicott's best known work. Ellicott succeeded L'Enfant in the Washington work and carried out his own plans with General Washington's commendation. The location of the Capitol and the White House is conceded to have been determined by L'Enfant; but otherwise the share of the two majors in the details of the city plan will always remain somewhat in doubt.

From a letter dated March 23, 1802, from three later commissioners to Mr. Dennis, chairman of a committee of Congress, it is learned: "Major L'Enfant's plan of the city was sent to the House of Representatives on December 13, 1791, by President Washington for the information of the house and afterward withdrawn. Many alterations were made therefrom by Major Ellicott with the approbation of the President and under his authority. All the appropriations (except at the Capitol and the President's House) were struck out and the plan thus altered sent to the engraver... being made partly from L'Enfant's draught and partly from material possessed by Ellicott."

STANDARD ARCHITECTURAL BOOKS -- II.

HISTORICAL MATERIAL BY PLACE, PERIOD AND STYLE.

PREHELLENIC ANTIQUITY.

GEORGES PERROT, Professor in the Faculty of Letters, Paris, member of the Institute; and Charles Chipiez. *Histoire de l'Art dans l'Antiquité*; translated in the following series: *A History of Art in Ancient Egypt*, translated and edited by Walter Armstrong, B. A., 1883; 2 vol. *A History of Ancient Art in Chaldea and Assyria*, translated by Walter Armstrong, 1884; 2 vol. *A History of Ancient Art in Phœnicia and its Dependencies*, translated by Walter Armstrong, 1885; 2 vol. *A History of Ancient Art in Persia*, translator not given, 1892; 1 vol. *A History of Ancient Art in Sardinia, Judæa, Syria and Asia Minor*, translated by I. Gonino, 1892; 2 vol. *A History of Ancient Art in Primitive Greece*, translated by I. Gonino, 1894; London, Chapman & Hall; New York, A. C. Armstrong, each volume, 4to (.269 x .185 x .026), price 21 shillings. The "Histoire de l'Art" of Perrot and Chipiez is quite general: but as pre-hellenic art is mainly recovered by excavation, and therefore largely architectural, the book may be relied upon to give a careful discussion of the architectural development of each country studied. In the class of libraries to which this list is recommended, Perrot and Chipiez will cover sufficiently all early historic civilizations except that of Egypt, for which special recommendations are made. It will be better, of course, to buy the original French work if this may be used to advantage. If not, the English translation listed is a good substitute.

James Henry Breasted, Ph. D.; Professor of Egyptology and Oriental History in the University of Chicago, Director of Haskell Oriental Museum, Director of the Egyptian expedition of the University of Chicago. *A History of Egypt from the Earliest Times to the Persian Conquest*. New York, Charles Scribner's Sons, 1905; 8vo (.245 x .175 x .05), 29+634 p., frontispiece, 200 ill., pl., maps; cloth, \$5.00.

In many libraries Professor Breasted's book will give as much information about Egypt as may be required with unusual definiteness. It is not often that any manual leaves so clear an impression upon the mind. The half-tone illustrations develop the most attractive qualities of Egyptian art.

François-August Choisy, *L'art de bâtir chez les Égyptiens*. Paris, Édouard Rouveyre, 1904; 4to (.28 x .19 x .025), 4+155 p., 106 ill.; 20 francs, unbound.

The monograph by Choisy on Egyptian architecture is developed on the same lines as the chapter on this subject in his "Histoire de l'Architecture" already described; dealing entirely with principles of design and construction. It supplements Breasted's book perfectly.

CLASSIC ANTIQUITY.

William J. Anderson (b. 1865, d. 1900), Director of the Architectural Department of the Glasgow School of Art; and R. Phené Spiers, F. S. A., F. R. I. B. A. *The Architecture of Greece and Rome, a sketch of its Historical Development*. Second ed. revised and enlarged. London, Batsford; New York, Scribner's, 1907; 8vo (.24 x .253 x .045), 382 p., ill., pl.; cloth, 18 shillings.

There has been an abundance of material on classic

architecture; but until the appearance of this book it was either crowded into general works or extended in special monographs. This manual does very well the preliminary work of clearing ground and presents that large general view which is the best introduction to any subject.

Marie-Désiré-Hector-Jean-Baptiste d'Espouy, Professor at the École des Beaux-Arts, Paris. *Fragments d'Architecture antique d'après les relevés et restaurations des anciens pensionnaires de l'Académie de France à Rome*. Paris, Charles Schmid; without date (1890-1905); fol. (.47 x .325 x .04), 2 vol., 200 pl.; 300 francs, unbound.

Every year the Institute awards to some young French architect the Grand Prix de Rome in Architecture, which pays the expenses of further education in classic countries for four years. During the first three years the recipient of the prize is obliged to send for exhibition in Paris careful drawings and restorations of some monumental fragment. These "Envois de Rome" are stored at the library of the École des Beaux-Arts. Prof. d'Espouy has undertaken to select from this mass and to publish those drawings which are not only the finest in themselves but which also illustrate most perfectly the development of classic architecture. The renderings are by the best French draughtsmen.

Francis Cranmer Penrose (b. 1817, d. 1903), D. C. L., F. R. S., F. R. I. B. A., F. R. A. S., F. S. A., President R. I. B. A., 1894-1895. *Investigation of the Principles of Athenian Architecture*, as the result of a recent survey conducted chiefly with reference to the Optical Refinements exhibited in the construction of ancient buildings at Athens, illustrated by numerous engravings, published by the Society of Dilettanti. New ed. London and New York, Macmillan Co., 1888; fol. (.545 x .38 x .035) 10+101 p., ill., 42 pl.; 117 shillings.

Penrose's book on Athenian architecture is not beyond the reach of a modest collection, and should certainly be secured by any one who is interested not only in architecture but also in good books. It is probably the most masterly architectural investigation yet published. Little has been added to our knowledge of the Parthenon since Penrose left it.

George Dennis. *Cities and Cemeteries of Etruria*. Revised ed. London, Murray, 1878; 8vo (.235 x .165 x .05), 2 vol., ill., pl., maps; cloth, 42 shillings. Reprinted; London, Dent (Every-Man's Library), 1907; 2 vols., 12mo; cloth, 2 shillings.

The Architecture of Etruria derives its chief importance from the fact that it explains many leading characteristics of the great Roman style which followed and is partly based upon it. Dennis is the standard English work on the subject.

Auguste Mau, Member of the Archaeological Institute in Rome. *Pompeii, Its Life and Art*, translated by Francis W. Kelsey, University of Michigan, with numerous illustrations from original drawings and photographs. New ed. revised and corrected. New York and London, The Macmillan Co., 1902; 8vo (.22 x .15 x .045), 25+557+2 p., frontispiece, ill., pl., plans; cloth, \$2 50 net.

The most intimate impression we receive of Roman art, and of Greek, too, for that matter, comes from the excavations of Pompeii, which are considered, quite sufficiently for our purpose, in this excellent book.

Rodolfo Amadeo Lanciani, Commendatore, Professor of Ancient Topography, University of Rome. *Ruins and Excavations of Ancient Rome*; a companion book for students and travellers. Boston, Houghton, Mifflin & Co., 1897; 8 vo (.2 x .14 x .045), 24 + 612 p., ill., 16 maps; cloth, \$4.00.

Besides the monumental works upon which his reputation rests, Prof. Lanciani has published in English several lighter books which have enabled those who run to read very easily, and with perfect appreciation of the architectural history of the greatest of all cities. Of these perhaps the most informing and most available for our purpose is the "*Ruins and Excavations*."

MIDDLE AGES.

Howard Crosby Butler, Professor of Art and Archaeology, Princeton University. *Architecture and Other Arts*; Part II of the publication of an American Archaeological expedition to Syria in 1899-1900. *Architecture, Sculpture, Mosaic and Wall Painting in Northern Central Syria and the Djebel Hauran*. New York, The Century Co., 1903; small fol. (.37 x .29 x .04), 25 + 433 p., ill., pl.; cloth, \$20.00 net.

When de Vogüé's book on "*Syrie Centrale*" was published in 1865 it was discovered at once by all critics, from Viollet-le-Duc down, that his revelations were vastly significant in the study of mediæval architecture, for the reason that the disintegration which befell Roman forms in the dark ages is most logically worked out in the table-land of Syria. De Vogüé's work does not properly come within the limitations of our list, but this fine American book by Professor Butler replaces it perfectly and is a splendid addition to any library.

Georg Gottfried Dehio, Professor in the University of Strasburg, and Gustav von Bezold, Director of the Germanic Museum, Nürnberg. *Die Kirchliche Baukunst des Abendlandes*. Stuttgart, Bergsträsser, 1901; text 8vo (.24 x .165 x .03), vol. 1-2: pl., small fol. (.4 x .32 x .035), vol. 1-5; 296 marks, unbound.

Two leaders in the artistic life of Germany have undertaken to publish a body of illustrations of the most important mediæval churches of western Europe. Their drawings are not elaborate, or especially attractive, but they are good, telling one in most cases precisely what one wishes to know concerning the building in question. There are plans of all important monuments.

Raffaele Cattaneo. *L'Architettura in Italia del secolo VI al mille circa*, translated by the Countess Isabel Curtis-Cholmeley in Bernani; *Architecture in Italy, from the sixth to eleventh century*. London, T. F. Unwin, 1896; 4to (.27 x .2 x .04), 363 + 1 p., frontispiece, ill.; cloth, \$2.15 net.

The existence of an English translation enables us to enrich our list with a notable book. Our readers will find the line illustrations from early Italian ornament most attractive and useful.

G. T. Rivoira. *Le Origini della Architettura Lombarda e delle sue principali derivazioni nei paesi d'Oltr'Alpe*. Rome, Loescher & Co., 1901-1907; 4to (.31 x .225 x .03-06), 2 vol., ill., 20 pl.; 90 lire, unbound; 506 copies printed.

It is a transgression of our self-imposed limitations to introduce so unfamiliar a language as Italian; but Rivoira's discussion of the Romanesque style, in Italy

usually called Lombard or Byzantine, is so ingenious and his splendid body of illustrations covers this suggestive period so completely, that even a small library may well give it space upon its shelves.

Arné Dehli, Associate of American Institute of Architects. *Selection of Byzantine Ornament*. New York, Helburn, 1890; small fol. (.36 x .29 x .035), 2 vols., no text, 100 pl.; \$20.00, unbound. Dehli's "*Byzantine Ornament*" is intended for use on the office table, as a source of suggestion in decorative design. The selections, mainly from St. Mark's and the Ravenna buildings, are well drawn in outline.

Charles A. Cummings (b. 1833, d. 1905), Member of American Institute of Architects. *A History of Architecture in Italy from the Time of Constantine to the Dawn of the Renaissance*, with nearly five hundred illustrations. Boston and New York, Houghton, Mifflin & Co., 1901; 8vo (.235 x .16 x .035), 2 vols., frontispiece, ill.; cloth, \$7.50 net.

The late Mr. Cummings left a charming work which covers this fascinating but vague period in a most sympathetic and careful manner. It should be in every American library.

Edouard-Jules Corroyer (b. 1851, d. 1904), Architecte, Inspecteur général des édifices diocésains. *L'Architecture romane*; in *Bibliothèque de l'enseignement des Beaux-Arts*. Paris, Maison Quantin, no date. (1888); 12mo (.21 x .15 x .025), 320 p., ill.; cloth, 3 francs 50 centimes.

Edouard Corroyer was a pupil of Viollet-le-Duc and played an important rôle in the study and preservation of French monuments. His little manuals on French Romanesque and Gothic Architecture will be found useful, that on Gothic Architecture has been translated.

Charles Herbert Moore. *Development and Character of Gothic Architecture*. Second ed. rewritten and enlarged. New York and London, The Macmillan Co., 1899; 8vo (.24 x .165 x .035), 28 + 454 p., ill., 11 pl.; cloth, \$4.50 net.

American students have found in Professor Moore's "*Gothic Architecture*" quite the best manual on this subject in English. It is the starting point for all research in the history of Gothic Architecture.

Edouard-Jules Corroyer. *Architecture gothique*; translated by Walter Armstrong; *Gothic Architecture*. London and New York, Macmillan Co., 1893; 12mo (.21 x .15 x .025), 382 p., ill.; cloth, \$2.00.

See note on Corroyer; *L'Architecture romane*.

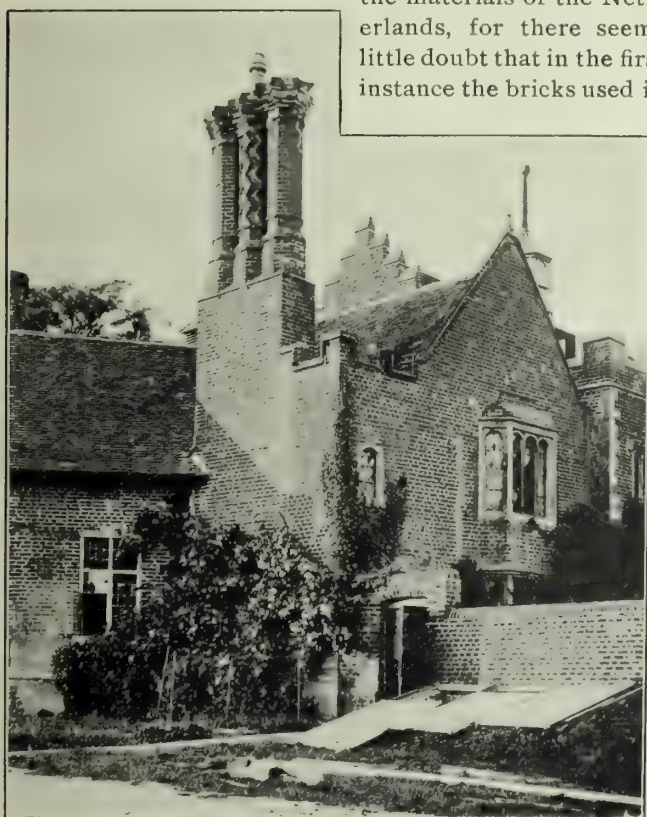
Eugène-Emanuel Viollet-le-Duc (b. 1814, d. 1879). *Dictionnaire raisonné de l'Architecture française du XIe au XVIe siècle*. Paris, 1854-68, later ed., 1875; 8vo (.245 x .16 x .035), 10 vols., portrait, ill. *Table Analytique et Synthétique* par Henri Sabine. Paris, 1889; 8vo., 20 + 387 + 1 p. The price of this book in half morocco and without the *Table Analytique* varied from £7 2s. to £8 in 1907.

Notwithstanding the prodigious mass of literature which is constantly appearing on the general subject of mediæval art, Viollet-le-Duc's great *Dictionnaire* still leads the field. Not only is it an inexhaustible treasury of information; it is also a strong book by a great writer, who appreciated fully the force of the historic movement which he did so much to make intelligible.

Brickwork in East Anglia.

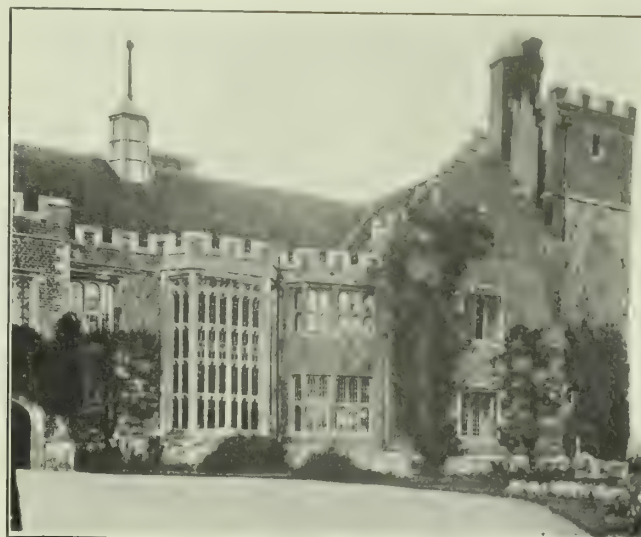
THE Eastern Counties of England — Norfolk, Suffolk, Essex — afford examples of a great number of beautiful manor houses and other buildings constructed almost entirely of brick, and counting among them the earliest examples of such work subsequent to Roman times. The bricks used by the Romans in Britain were of large dimensions, being much longer and wider and thicker than those of the present day, while the bricks in East Anglian houses are smaller and thinner than the standard brick of to-day. The reason for this is found in the fact that the revival of brickbuilding in England was coincident with the incoming of the Flemings into the Eastern Counties in the fifteenth and sixteenth centuries. They brought with them the traditions and even

the materials of the Netherlands, for there seems little doubt that in the first instance the bricks used in



HORHAM HALL, ESSEX.

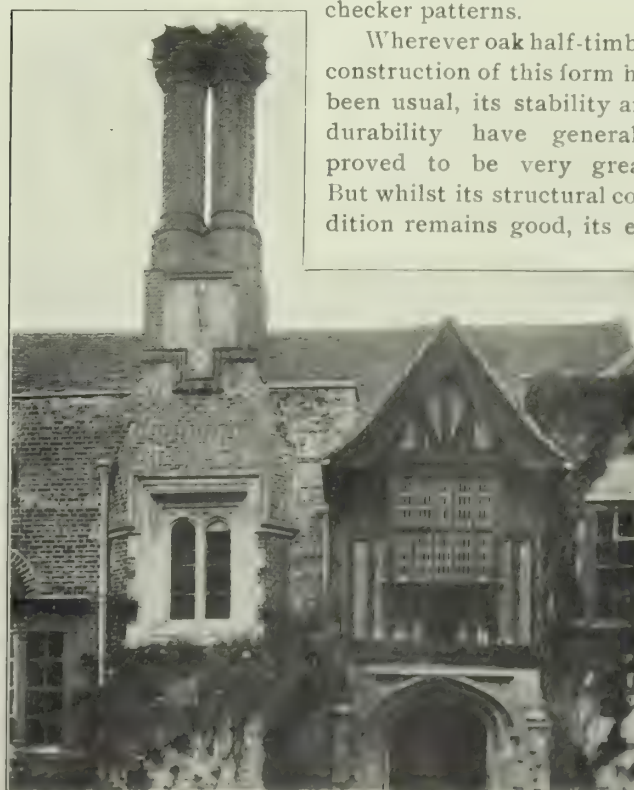
the houses came over from Holland. As Mr. Edwin Gunn, A. R. I. B. A., pointed out in a most interesting paper, which he read before a recent meeting of the London Architectural Association, materials for the manufacture of brick and tile could be readily obtained in the Eastern Counties, but their use was somewhat restricted by the badness of the roads, which made the transit of any heavy material in bulk a serious and difficult matter. As a consequence, in most cases previous to the eighteenth century, brickwork is found only in buildings of sufficient size and importance to have justified manufacture on the spot, or in such situations that the bricks could be brought by water. In the smaller buildings its use is restricted by bare necessity, and generally confined to chimney stacks, wall base or nogging. Tile roofs were frequent, but the builders were obviously more at home in their use of thatch, and displayed none of the dexterity of the Home Counties tilers, whilst tile-hanging is almost unknown.



HORHAM HALL, ESSEX.

The type of small domestic building in the Eastern Counties which was most common in the Middle Ages differs hardly at all in its constructive essentials from the half-timbered buildings of the southern counties of England. It has usually a base of brickwork or brick and flint upon which is erected oak framing composed chiefly of vertical studs, the narrow panels between being filled with clay and straw. Each successive story overhangs that below, and the panels are plastered flush with the framing. An immense amount of work such as this remains almost intact in such towns as Lavenham, Sudbury, Hadleigh, and in their adjoining villages. It was also a very frequent practice to fill in the panels between the timber framing with brick nogging, laid with most charmingly-ordered irregularity in various forms of diagonal, herringbone and checker patterns.

Wherever oak half-timber construction of this form has been usual, its stability and durability have generally proved to be very great. But whilst its structural condition remains good, its ex-



GIFFORDS HALL, STOKE-BY-NAYLAND.

ternal appearance often takes an air of picturesque dilapidation, which, though much appreciated by sketchers and photographers, is distasteful to the mind of the owner, who then proceeds to find a remedy. In Kent and Sussex this remedy is generally tile-hanging, but, as before stated, this is uncommon in East Anglia; it is, in fact, in the early seventeenth century that the specially individual characteristics of the district develop.



GIFFORDS HALL, STOKE-BY-NAYLAND.

As already indicated, great proficiency in the use of brickwork was attained at a comparatively early date in the Eastern Counties. It is only necessary to instance such examples as Little Wenham Hall, East Barsham Manor House, Oxburgh Hall, Great Snoring Rectory, Layre Marney, and other similar buildings in proof of this. In the smaller buildings, however, it is chiefly in chimney stacks and wall base that brickwork shows. The capacity of the local bricklayer to produce good results with no other material than common red bricks (of course two inches thick) and plain tiles was quite surprising. It is astonishing to note the variety of design extracted from these simple materials as used in the chimney stacks of the early seventeenth century. Earlier than this the usual clusters of octagonal shafts, often elaborately molded, are most frequent, but from that time onward a distinct local type seems to have arisen, and one which appears to have many points in its favor.

Beautiful as all must admit the clustered type of stack to be, the single flues of which it is composed offer the very greatest chance of draught, owing to their large cooling surface, and, furthermore, have great opportunities of falling into disrepair. The abundance of examples in which they may be

seen to have been rebuilt from the base upward is evidence of this. In the later type detached flues are abandoned; or rather, they appear to coalesce into ribbed chimney stacks, having a fine sturdy effect and the practical advantage of keeping the flues warm and preserving their own stability.

Among the illustrations which accompany this paper it will be noted what an outstanding feature the chimneys



EAST BARSHAM, NORFOLK.

are, and in what diversity they are wrought. For the rest, one sees how unostentatiously the brickwork has been used in unbroken wall space, in conjunction with the oak framing or with stone dressings to windows, balustrades, string-courses and other parts.



DEANERY TOWER, HADLEIGH, SUFFOLK.

Among the brickbuilt houses which remain to tell of the wealth and prosperity of the Eastern Counties, at the beginning of the sixteenth century, East Barsham is the most widely known. The walling is of thin, red brick (five courses, including joints, rising to about one foot), mellowed with age to a warm, rich red, in which diaper work is sparingly introduced. The traceries, molded bricks and window heads exhibit no characteristics unfamiliar to the native craftsman, but here and at Great Snoring Rectory, close by, intermixed with this native work is much ornament in terra cotta, which betrays a foreign hand — presumably Italian. Prominent on the exterior is the cluster of the chimney shafts at the west end, rising above a great pile of brickwork, which, at one time, formed the end wall,

containing the fireplaces to the hall and adjoining parlor, while other striking features are the molded brick pinnacles at the corners of the towers and the panel work on the main front of the house. Other fine



MOYNS PARK, ESSEX.

chimney stacks are to be seen on Thorpland Hall, Norfolk.

Horham Hall, Essex, is another example of the old brick house of East Anglia. Here, as usual, the walling is of thin, red bricks, with dark gray headers sparingly introduced to form a diaper in places, but with stone for all the wrought work to porch, bay and window. The porch gives access through the "screens" to the great hall, which occupies the whole of the center of the house, measuring about 46 feet by 24 feet, and 25 feet high, and having a magnificent bay window, arranged in four tiers of lights.

Another fine house is Moyns Park, in Essex — wonderfully striking in the breadth of its effect, with the great bays alternating with the gables. On elevation, the features are apparently of the simplest character, but



MOYNS PARK, ESSEX.

the work is so well proportioned and so pleasingly disposed that the result is truly a "joy forever," the more so as the brickwork, after centuries of exposure, has mellowed to a beautiful tone, which, with the lichen and ivy, forms a color harmony of exquisite value.

Of the other houses shown, the illustrations may be



MOYNS PARK, ESSEX.



OLD HOUSE, MOYNS PARK, ESSEX.

left to speak for themselves. Hadleigh dates from about 1500, and Giffords Hall from about the time of Henry the Eighth, with a hall of much earlier date — probably fifteenth century. They all testify to the noble effect of brick building, to the charm of cunningly-devised chimney stacks, and to the breadth of effect which can be secured by plain wall space, appropriately relieved; they are eloquent, too, of that quiet grandeur which has grown round about them in the course of centuries, wherein the hand of time has wrought its kindest work.

Editorial Comment and Miscellany.

THE chief cause of the acknowledged monotony of American streets is the practice of building solidly to a uniform street line. In every case where an old landmark in the shape of a public building or venerable mansion, surrounded by a bit of ground and verdure, has been razed for modern buildings there is a feeling of mute regret. This is because the only agreeable spot of relief in an otherwise solid street front has gone. It is useless to complain of destiny in the growth of cities, but it is natural to wish for some compensation to the losses it causes. It is natural that Martin's neighbor on Fifth Avenue should protest against the projecting summer garden and portico of the restaurant; likewise the neighbors of Sherry's, of the St. Regis, of the Hotel Gotham and of the Waldorf. And the Appellate Court may be right in compelling the removal of all structures now existing beyond the house line on either side of Fifth Avenue; but a portion of the public, at least, is interested in knowing what is to take the place of these verdant terraces which are truly an ornament to the thronged thoroughfare. If for the physical needs of the traffic the terraces

of the opposition, one of the city's leading dailies declares that the wishes of the average taxpayer and resident of Chicago have not been considered. How weak a plea: The true attitude of that fraternity, — if attitude it have, — is never ascertainable in such cases when a few leaders are supplying the momentum for a public improvement. Whatever change is proposed is

sure to meet with the muttered criticism, reluctance and apathy of the average taxpayer and resident. These persons have never actuated a public improvement of an esthetic nature. Radical changes in cities are always achieved by a dictator or a dictator backed by a unani-

mous council. When the average taxpayer and resident takes a hand there will be time enough to consider his wishes.

THE findings of the Board of Award of the New Sing Sing Prison Competition are neither satisfactory nor unexpected. While the successful competitor may not have been foretold, the unfortunate outcome is not surprising in view of the unfavorable circumstances which met the launching of the competition. In the opinion of some, these circumstances, which caused some of the best talent in New York state to hold aloof from the contest, had their origin in part in the disagreement between the champions of the "closed competition" and those of the "open competition." At all



UNION STATION, WASHINGTON, D. C.
D. H. Burnham & Co., Architects
Fireproofed throughout with Terra Cotta Hollow Tile
by National Fireproofing Company.



FAIENCE WALL PANEL
5 feet high, 3 feet wide.
Executed by Hartford Faience Co.



DETAIL BY NORTHWESTERN TERRA
COTTA COMPANY.
Toledano & Wogan, Architects.

asphaltum wastes, admitting the beauty of Nature to Vanity Fair?

THERE is considerable agitation in Chicago over a boulevard elevated upon a series of arches, and proposed by Mr. Burnham and his associates for connecting the north and south park systems. Voicing the sentiment

and gardens must go, will the city do anything to beautify the Avenue by other means? Will it bring a glimpse of verdure to

events, it is very satisfying to read the protest entered by the State Architect of New York and to note his warm

approval of Warren & Wetmore's superb plan.



DETAIL BY CONKLING-ARMSTRONG
TERRA COTTA CO.
A. A. Ritcher, Architect.

THE first skeleton skyscraper in New York City is the Tower Building at 50 Broadway, which was designed by Bradford L. Gilbert in 1888. The scheme of transmitting the weight of walls and floors through girders and columns to the footings was then a novel one.

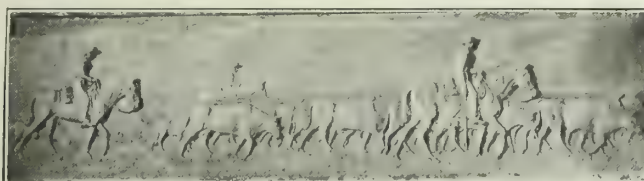


THE LAKESHORE PLAYGROUND SHELTER, CHICAGO.

Perkins & Hamilton, Architects.

Exterior and Interior walls constructed of salt glazed hollow
Terra Cotta blocks made by National Fireproofing Co

The building laws made no provision for such construction. When a permit was applied for, the plans were submitted to a board of seven examiners, who long deliberated the matter and at length approved the application for a permit. The building was finished a year later. Now it is being demolished to give place to a new thirty-eight-story structure designed by Architect W. C. Hazlitt.



DETAIL BY AMERICAN TERRA COTTA & CERAMIC CO.
W. J. Frein, Architect

ARCHITECTS designing buildings in connection with athletic fields may make interesting comparisons with the Stadium at Shepherd's Bush, London, where 125,000 spectators could watch 2,000 of the picked athletes of the world in the recent Olympic Games. The length of the turf inside the running track was 235 yards, the breadth just under 100 yards. The swimming pool was 109½ yards long by 50 feet wide, with a depth of 12 feet in the center for high diving. The

number of seats under cover was very close to 40,000. There were numbered seats for 68,000 people and standing room with iron rails to lean against for from 40,000 to 50,000 more.

IN the preliminary competition for the Springfield (Mass.) Municipal Building Group, Evans & Bright of Philadelphia and Louis R. Kaufmann of New York were the two winners who, by the

terms of the competition, are permitted to enter the final contest along with five other firms invited to submit designs and to be paid \$400 each for so doing. These

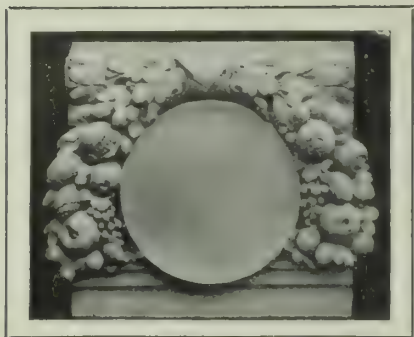
firms are Cass Gilbert, Hale & Rogers, Lord & Hewlett, Peabody & Stearns and Pell & Corbett. The two winners in the preliminary competition will also be paid \$400 each. The final competition will also be open to all Springfield architects who are able to qualify professionally before Prof. Warren P. Laird of the University of



GARFIELD PARK REFECTORY AND BOAT HOUSE, CHICAGO.

W. C. Zimmerman, Architect.

Roofed with green glazed tile made by Ludowici-Celadon Co.



DETAIL BY F. M. ANDREWS,
ARCHITECT.

New York Architectural Terra Cotta Co.,
Makers.

skyscrapers have been announced. The Bank of New York has plans by Clinton & Russell for a twenty-story building of limestone and granite, costing \$650,000, and to be erected at the northeast corner of Wall and William streets. Another is the 1,000-foot high building to occupy a plot at Broad and Wall streets. The cost is placed at \$7,000,000, and the area of the tower, it is reported, is to be 100 by 80 feet. Ernest Flagg is said to be the architect. The United States Realty Co. plans a twenty-four-story building for Nos. 67 and 69 and Nos. 89 to 91 Beaver Street.

REAL estate owners in New York, aroused at the recent announcement of a \$1.61 tax rate, are organizing for the purpose of keeping a strict watch upon the making up of the annual budget, and of following the manner in which it is spent. Little effort is made, they argue, to collect the full tax upon personal property, while the burden of municipal extravagance invariably falls upon real estate. Conditions may be pretty bad in New York, but the tax rate objected to is much less than that in force in many other American cities.

Two New Park Buildings, Chicago.

(See illustration, this number.)

SEWARD PARK, Chicago, is named for Wm. H. Seward, President Lincoln's secretary of state, the Park Board having adopted the names of Lincoln's cabinet officers as names for this and future small parks.

Pennsylvania who is the advisory architect of the Municipal Building Commission. The two local firms whose work is regarded as the best will be paid \$400 each.

WALL Street is having a building boom. Within a fortnight plans for three

The dimensions of the ground are 346 x 218 feet. It is situated in a densely populated district on the North Sidewhere ground is expensive for park purposes.

The site is not a large one, but cost \$85,000, it being necessary to wreck a large building which previously occupied it. The building was erected at a cost of \$85,000, and its equipment (including outdoor improvements) \$15,000 more. Ample facilities are provided for gym-

nastic instruction for men, women and children of all ages, both summer and winter. A large amount of play apparatus has been installed for the children. Space has been provided in the field for games and a running track.

The building contains a large gymnasium for men and one for women, each 40 x 78 feet. Steel locker, toilet and shower accommodations for men, boys under ten years of age and women and girls are provided in three groups with gymnasium connections from each, 400 steel lockers being installed in each group with separate toilets and shower baths. The locker groups are each on three levels with upper floors constructed of 1-inch glass in iron frame and a small stair connection is provided from floor to floor. The roof above each is of green glass tile.

The central loggia, 40 x 60 feet, provides entrance, shelter and lounging space for a large number of people. The assembly hall above it (of the same size) is well arranged for entrance and exit stairs on both sides — and is intended for dancing and entertainments.

Adjoining the assembly hall is a free reading-room and delivery station conducted by the Chicago Public Library Board. Below this, on the first floor, are lunch rooms and the director's office.

The building is built en-



DETAIL BY NEW JERSEY TERRA COTTA CO.
Clinton & Russell, Architects.



DETAIL BY SOUTH AMBOY TERRA COTTA CO.
J. Warner Allen, Architect.



DEAN BUILDING, SO. BEND, IND.

George W. Selby, Architect.
Brick made by Hydraulic-Press Brick Co., St. Louis.

tirely of brick both inside and out, the exterior being of a rough wire-cut brick with beautiful variation of color in reds and browns. The interior is of a yellow vitrified brick, the roof of green enameled tile.

The Lake Shore Playground is used entirely for a baseball field. The portion to the east of the building for some three hundred feet is used for a playground and an athletic field for men, women and children. The building contains

a rest-room, toilets and shower baths for women and separate equipment of locker, toilet and shower accommodations for men and boys under ten years of age as well as a very large area of outdoor observation and shelter floor space.

IN GENERAL.

Russell E. Hart, New York City, winner of THE BRICKBUILDER'S Competition for a Theater Building, will spend the coming winter in study and travel in England, France and Italy.

Wilson Levering Smith, formerly with Parker, Thomas & Rice, has opened an office for the practice of architecture in the Law Building, Baltimore. Manufacturers' catalogues desired.

The following named have been elected officers of the Pittsburg Architectural Club: Benno Jannsen, President; Richard Kiehnel, Vice-President; Stanley L. Roush, Secretary; James M. Macqueen, Treasurer; John T. Comes, Chairman of Entertainment Committee.

Excavation at Herculaneum has been intermittent, and has lagged far behind



HOUSE FOR LLEWELLYN HOWLAND ESQ., PADANARAM, MASS

Phillip B. Howard, Architect.

The walls are built of two courses of hollow tile terra cotta blocks, the blocks in the outside course measuring 12 in. x 8 in. and those on the inside 12 in. x 4 in. The walls are 9 in. in thickness.

similar work at Pompeii. An American company now proposes to attack the task with all the improved methods of modern mining.

The "Build Now" campaign is substantially assisted by lower prices for building materials; but this advantage is almost offset by high interest rates, for the money market is not yet in condition to back a normal building industry.

Milwaukee's Convention Hall, of which the corner-stone was laid

August 1, has the distinction of being available for use as a huge single auditorium, seating 8,594 persons, or being readily divisible into several smaller halls each separate from the other.

George F. Newton is the architect of the Music Building now being erected at Mt. Holyoke College. . . . Delano & Aldrich are doing the Music Hall which is the gift of Mrs. Russell Sage to the Northfield, Mass., Seminary. . . . Another donation by Mrs. Sage provides for a new dormitory at Princeton, for which building Frank Miles Day & Bro. have been chosen architects. . . . Parish & Schroeder are the designers of the \$80,000 Dining Hall now building on the campus of the Mt. Hermon, Mass., school. . . . Shepley, Rutan & Coolidge have the design completed for the John Hay Memorial Library at Brown University. For this building \$150,000 had been raised when Andrew Carnegie added as much more. Construction is soon to begin.

The Metropolitan Life Insurance Co.'s tower on Madison Square, New York,



OFFICE BUILDING FOR DETROIT GAS CO.

John Scott & Co., Architects.

Exterior of white mat glazed terra cotta made by Atlantic Terra Co.



DETAIL BY BRICK, TERRA COTTA & TILE CO.

Henry C. Pelton, Architect.

O. F. Semsch, chief engineer for Ernest Flagg, has supplied figures for an imaginary skyscraper of the maximum height permissible under the various restrictions of the New York Building Code. The building would rise to a height of 150 stories; its walls would be 12 inches thick at the top and at the bottom 12 feet; they would withstand a wind pressure of 30 pounds per square foot their entire height; the building would cost about \$60,000,000. The height of such a building, it is declared, does not depend upon any structural defects or the wind pressure to which it would be subjected.

The new residence for James A. Blair, Esq., at Oyster Bay, Long Island, Carrère & Hastings, architects, will be built of "Real Roman Tapestry Bricks," furnished by Fiske & Co., New York. These bricks are 18 inches long, 8 inches thick, 6 inches wide and run in a great variety of color, from clear red to clear blue, with intermediate shades of brown, purple, olive and weathered copper.

The terra cotta used in the Armory at Brooklyn of which Pilcher, Thomas & Tachau were the architects and the Naval Battalion Armory, Brooklyn, Lord & Howlett, architects, was supplied by the Atlantic Terra Cotta Company.

The two Park Buildings, Chicago, Perkins & Hamilton, architects, illustrated in this month's issue, are roofed with tile made by the Ludowici-Celadon Co.

The faience panel by the Hartford Faience Company, illustrated in this issue of THE BRICKBUILDER, is composed of about five pieces. The black lines are recessed which

is to have four of the largest bells in the world. They are to chime the quarter hours 650 feet above the pavement.

Since Warren & Wetmore's plans were filed for the much heralded Ritz-Carlton Hotel in New York, it is reported that the project is to be abandoned, for the present at least. Meanwhile the management of the Plaza Hotel in New York plans to build a palatial hotel upon American lines in both London and Paris.

Plans for the restoration of the famous old castle of Heidelberg have been accepted by Grand Duke Frederick of Baden.

mark out the design and are about one-eighth inch in width. The real joints come along certain of these recesses. The recesses are beveled and filled in with black cement after the panel is set, thereby hiding the joint and giving a mosaic effect.



DETAIL BY MILLER & OPEL, ARCHITECTS.

Made by St. Louis Terra Cotta Co.

The advantage of this over mosaic is the ease with which the panel can be set without the workmen getting the pieces in the wrong place.

Skyscrapers more than twenty stories in height are not profitable. The cost of operating elevators sufficient to safeguard the tenants makes the cloud piercing building uneconomical. Such were the opinions of the building managers from all the large cities in the country who met in convention at the Auditorium, Chicago, to discuss questions of systematic management of

skyscrapers. The convention is the first of its kind ever held and it probably will result in the formation of a national association of building managers.

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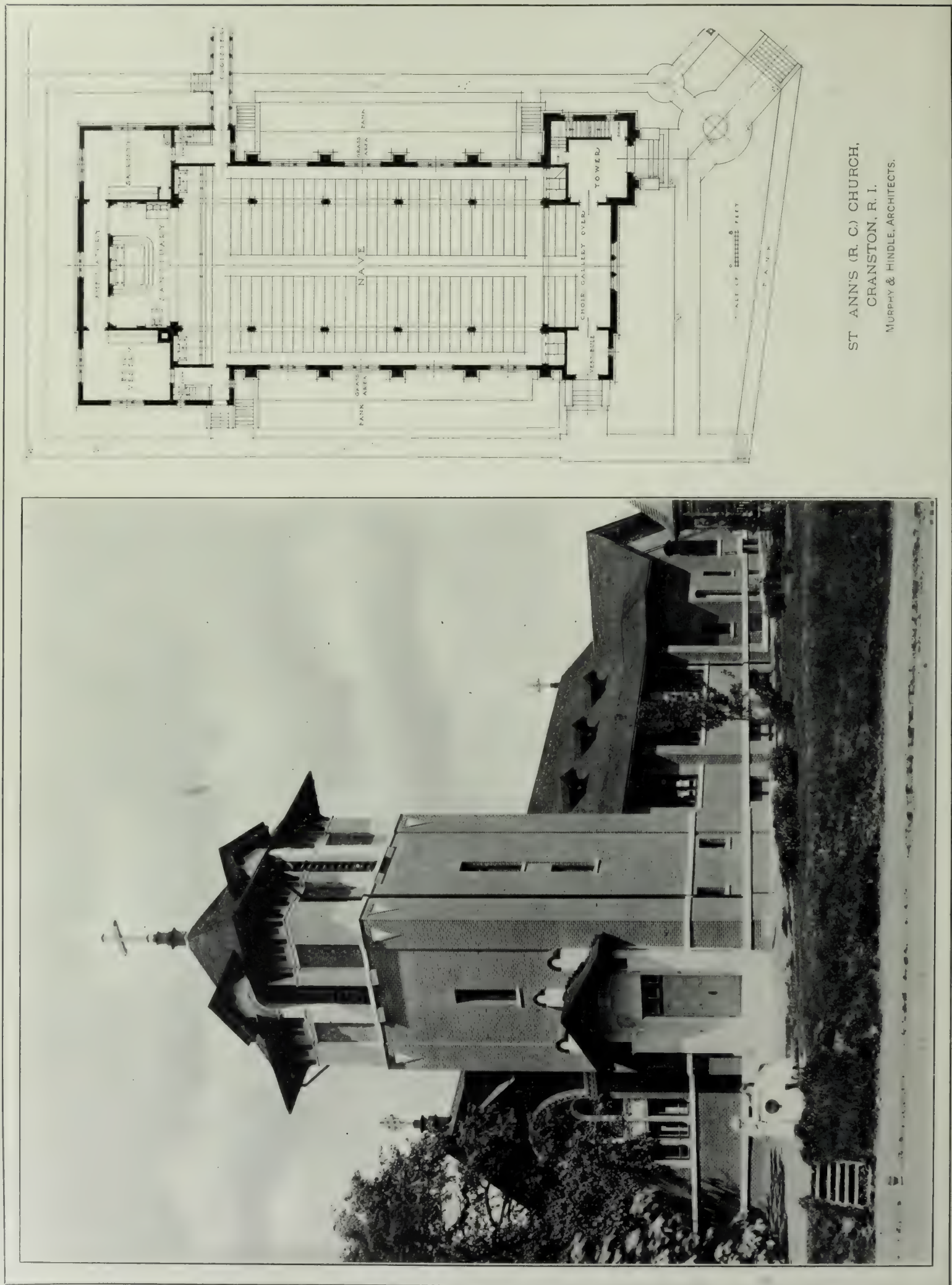
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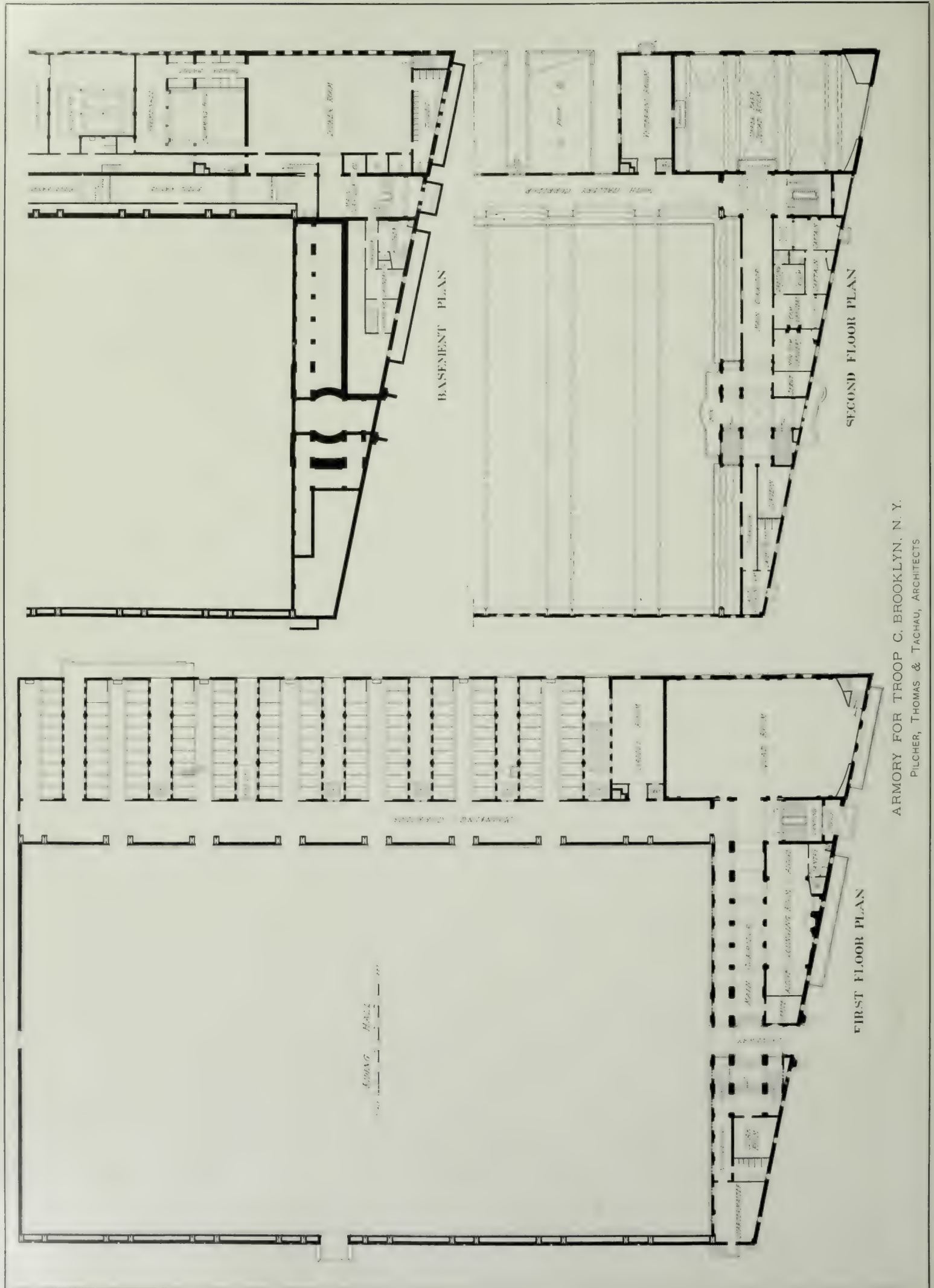


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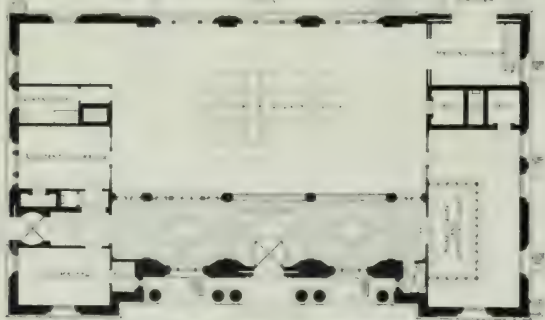
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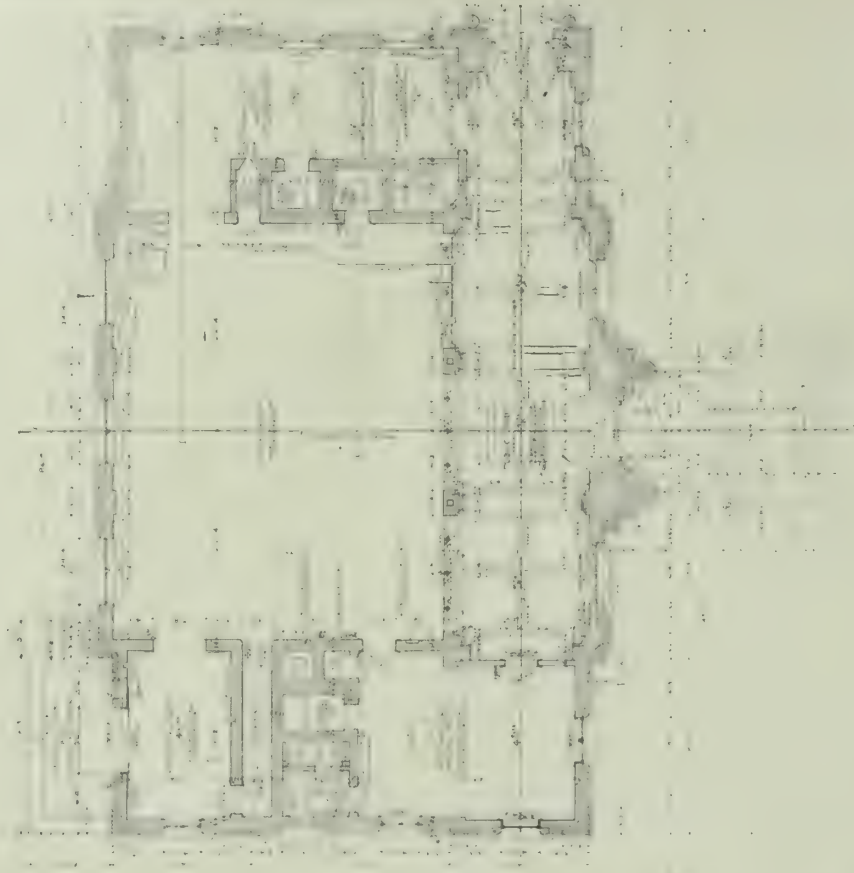
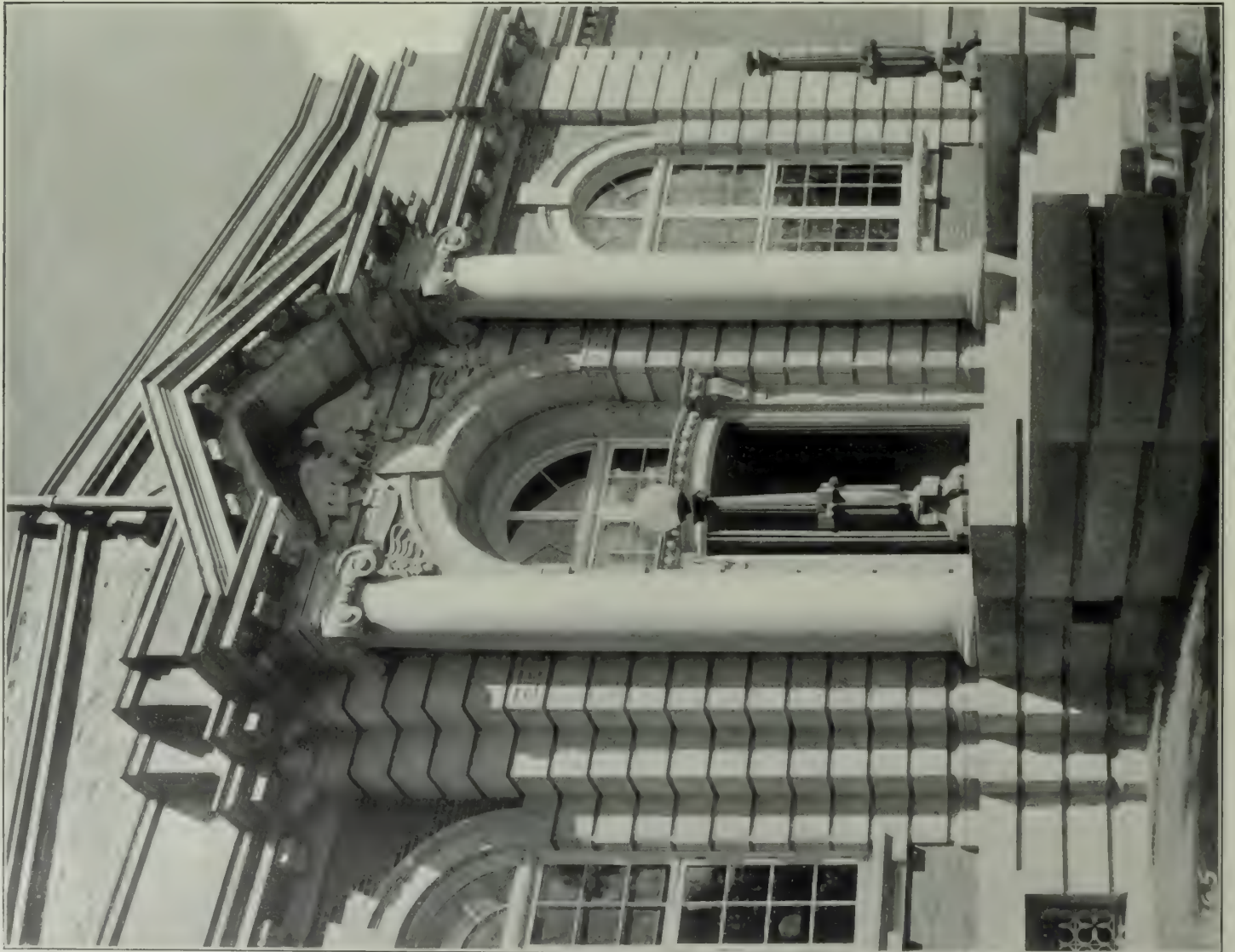




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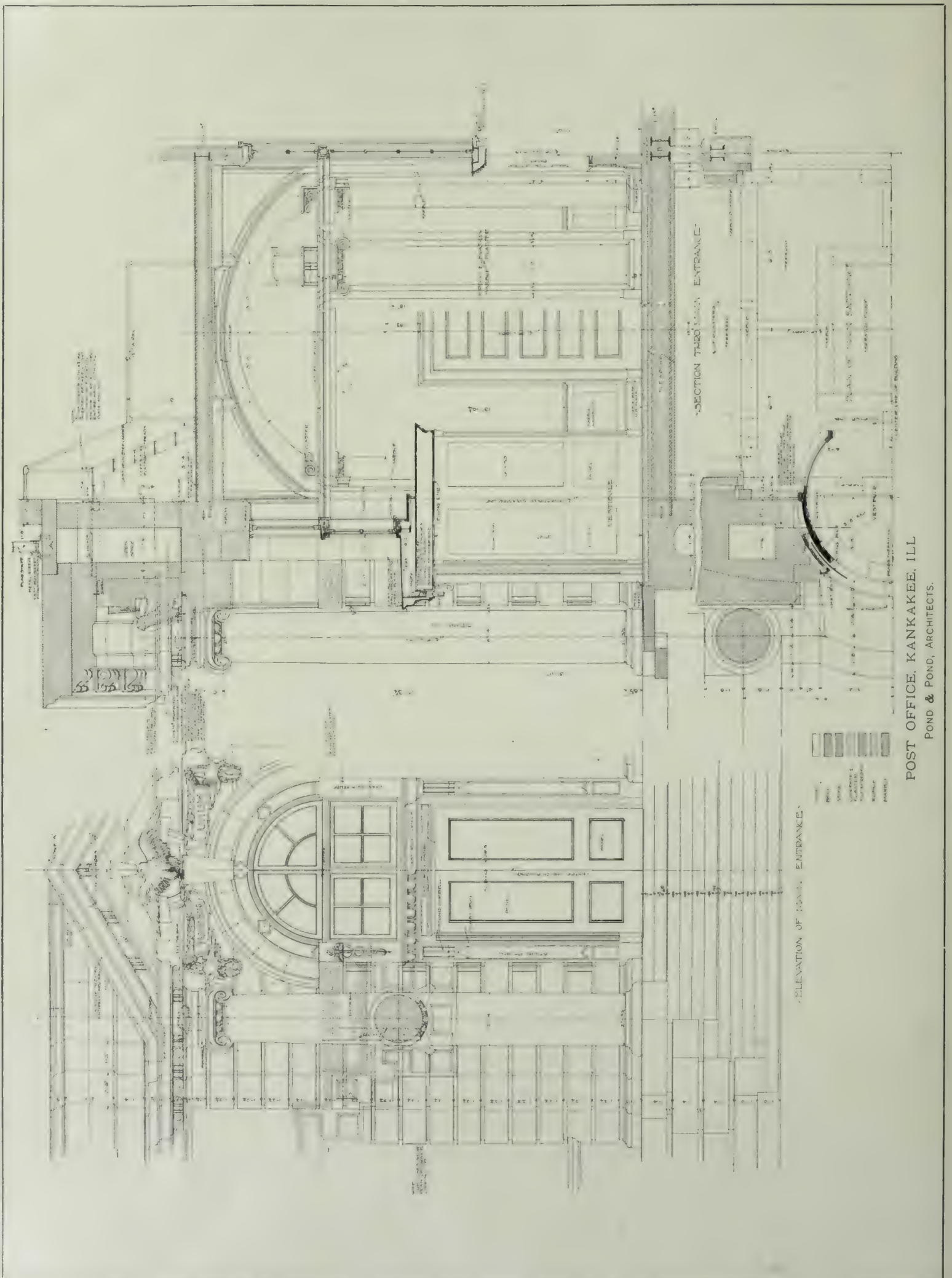
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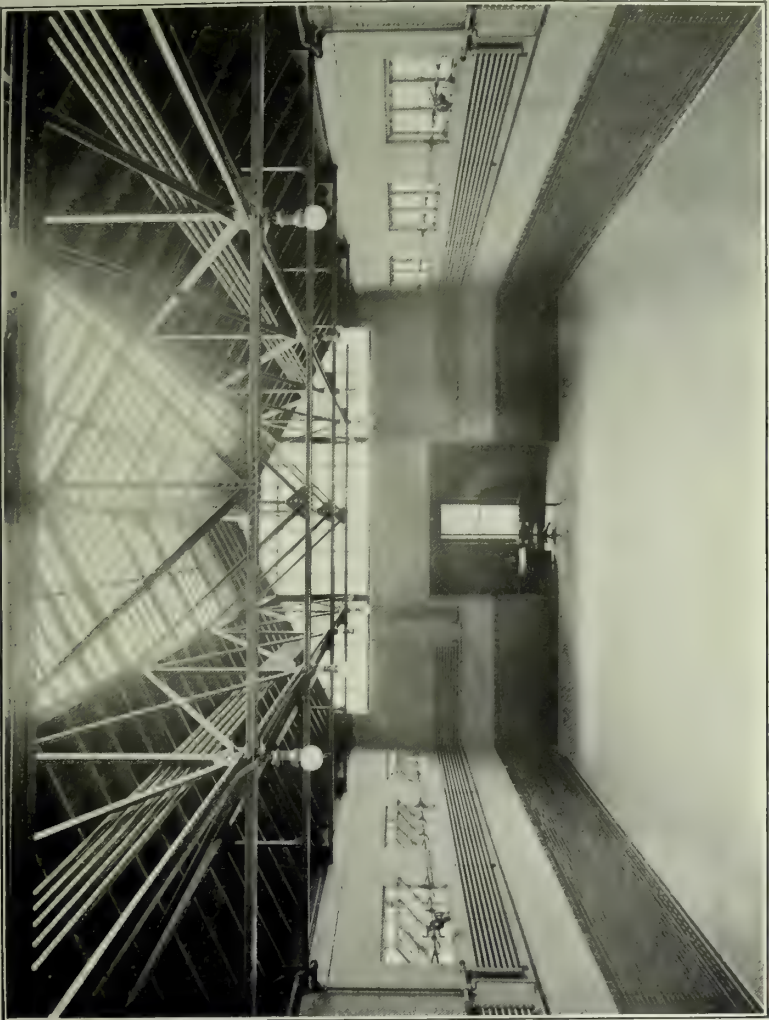
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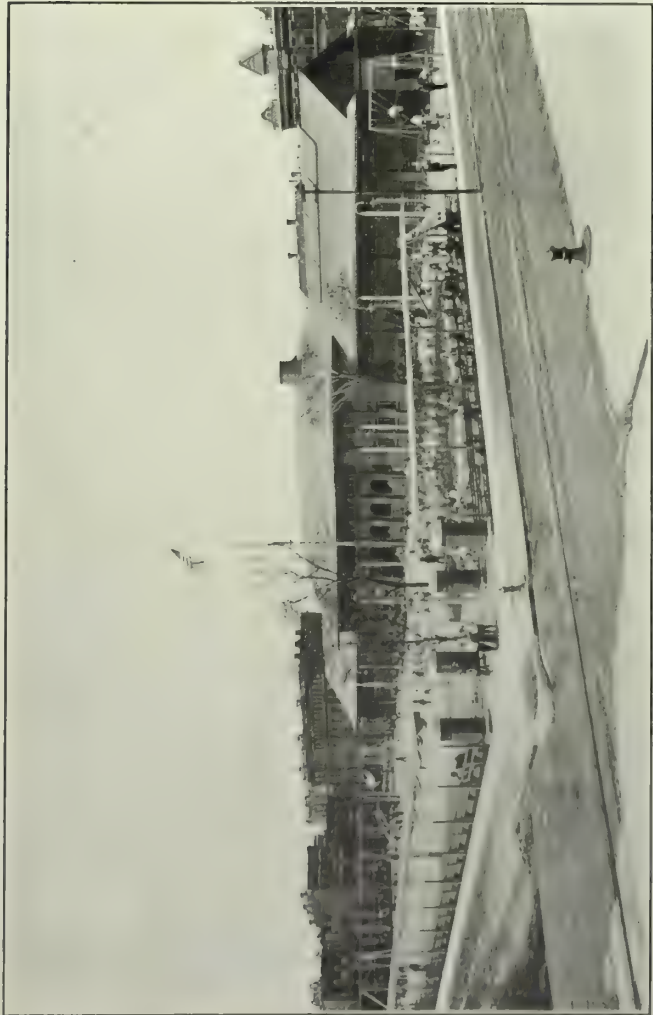
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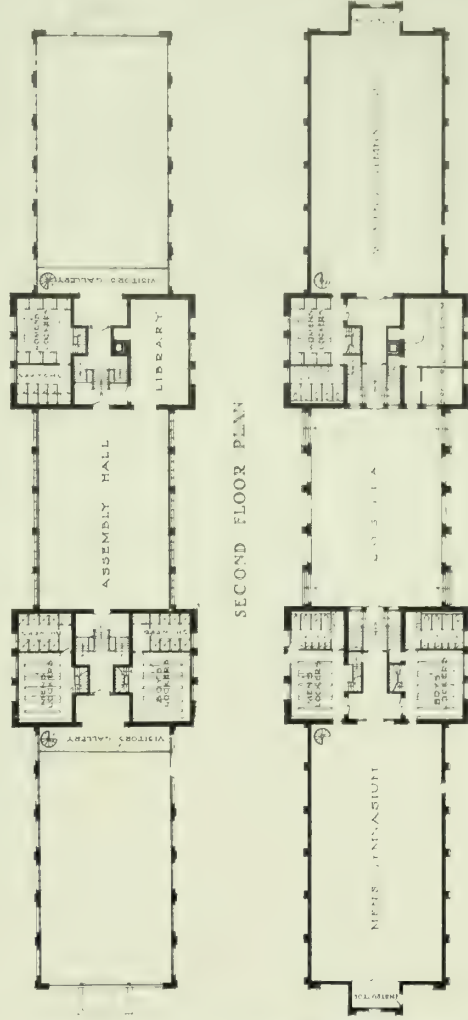
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WOMEN'S GYMNASIUM



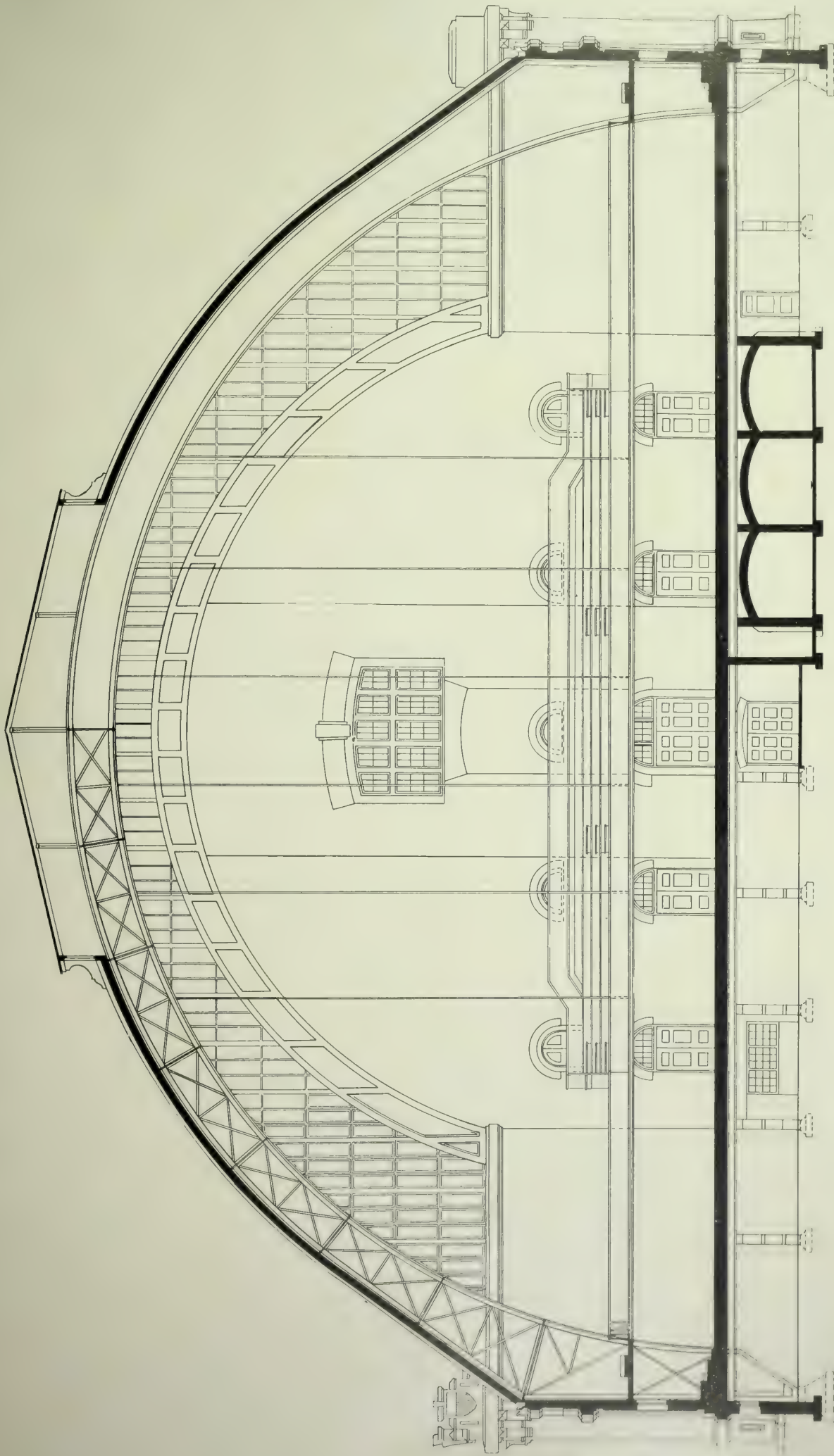
GENERAL VIEW OF SEWARD PARK



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SECOND FLOOR PLAN

PARK BUILDING, SEWARD PARK, CHICAGO
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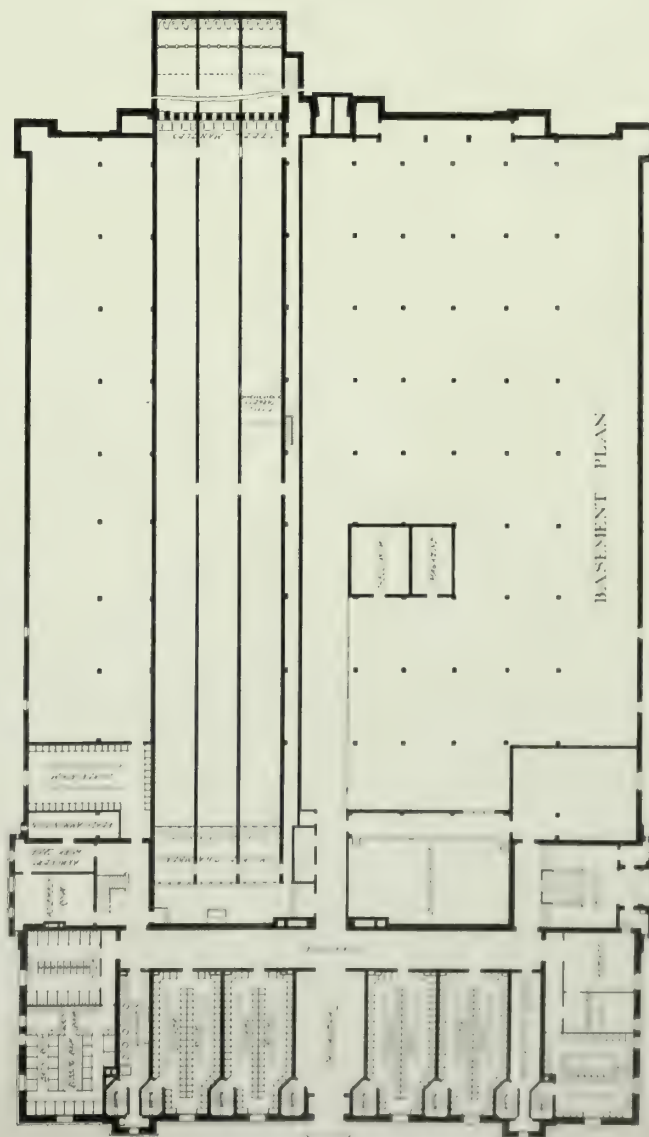
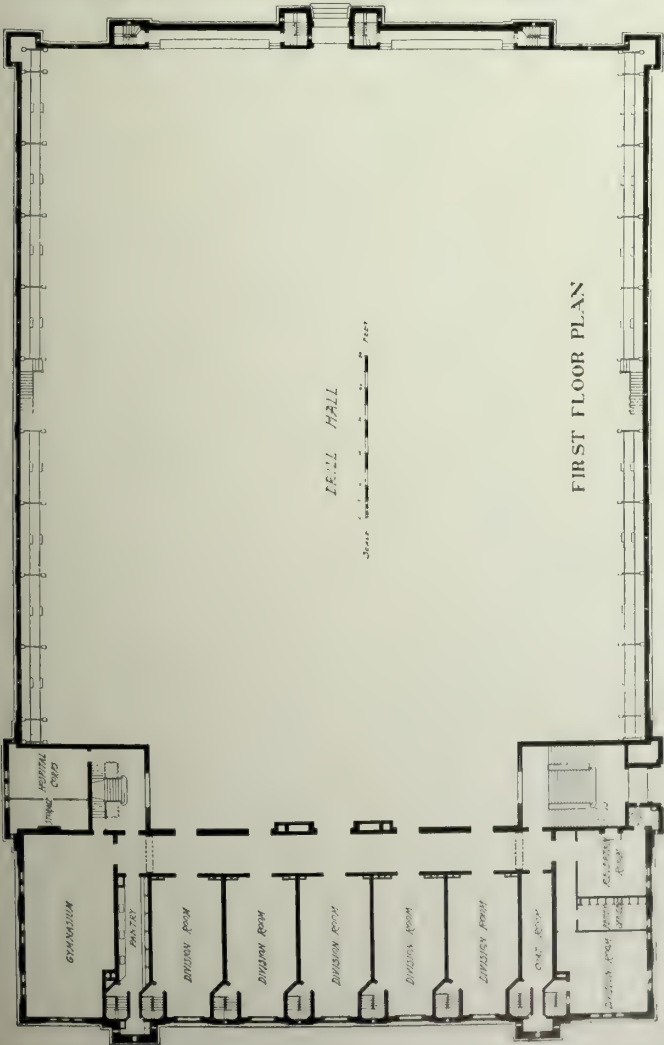
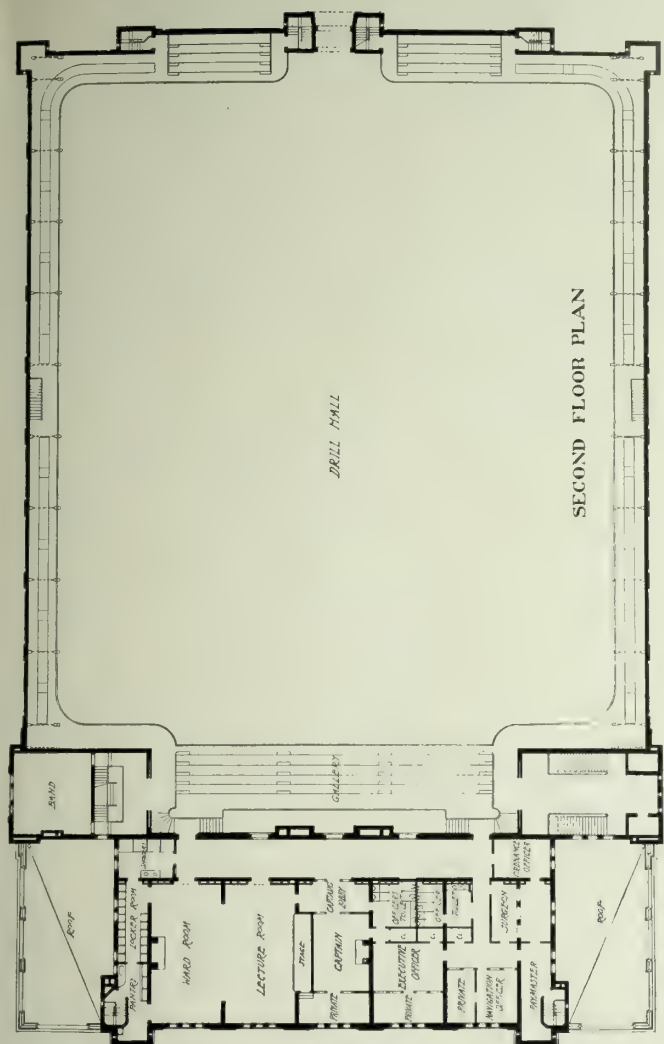


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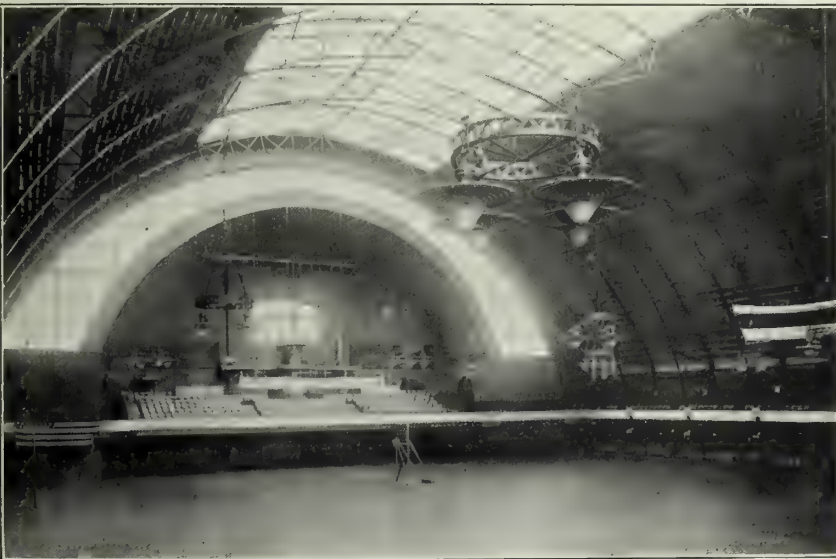


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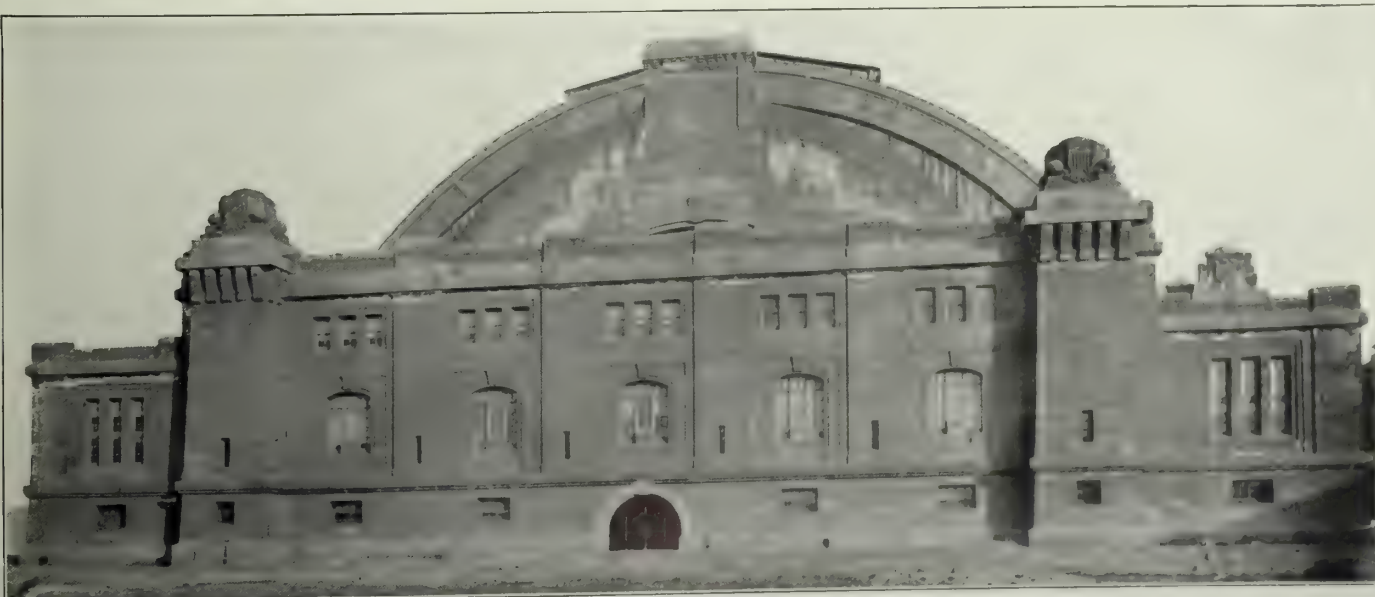




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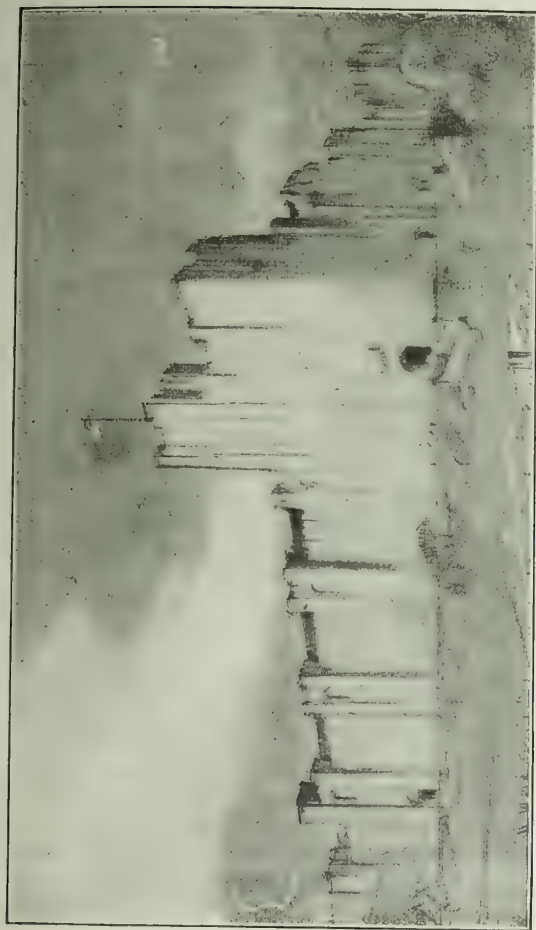


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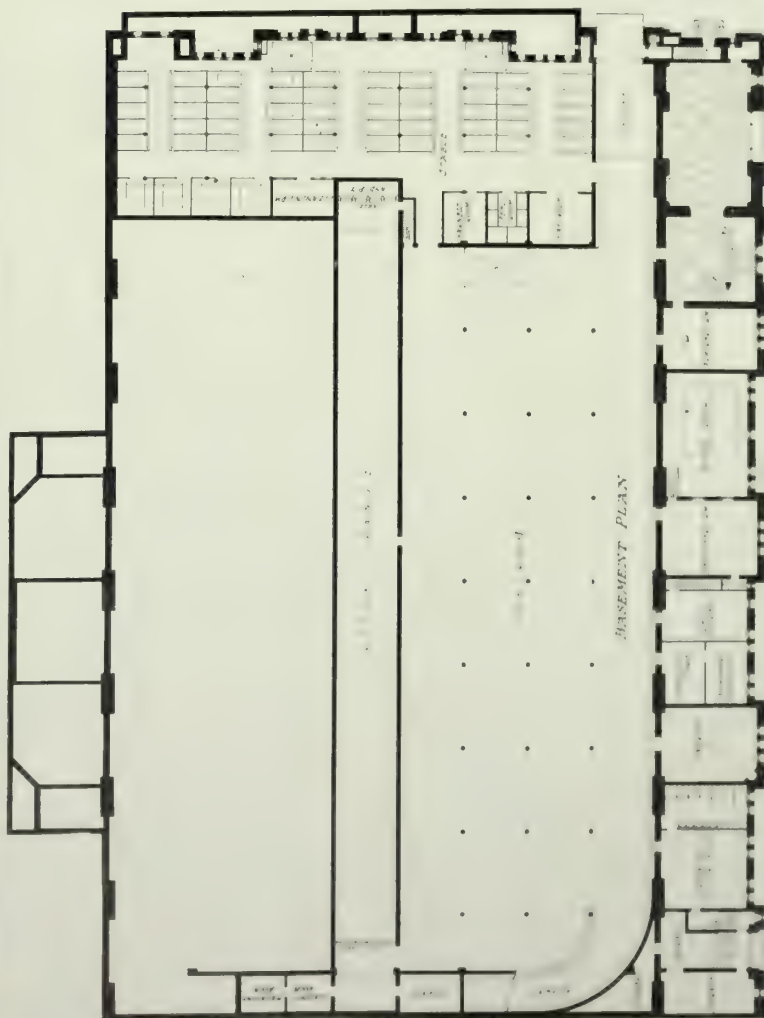
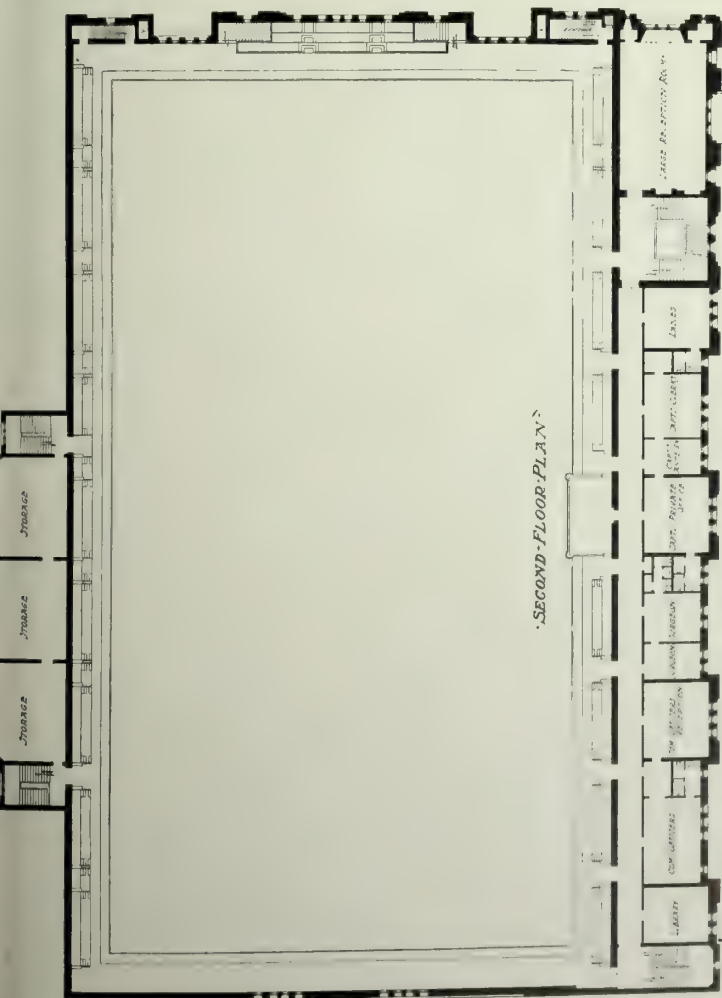
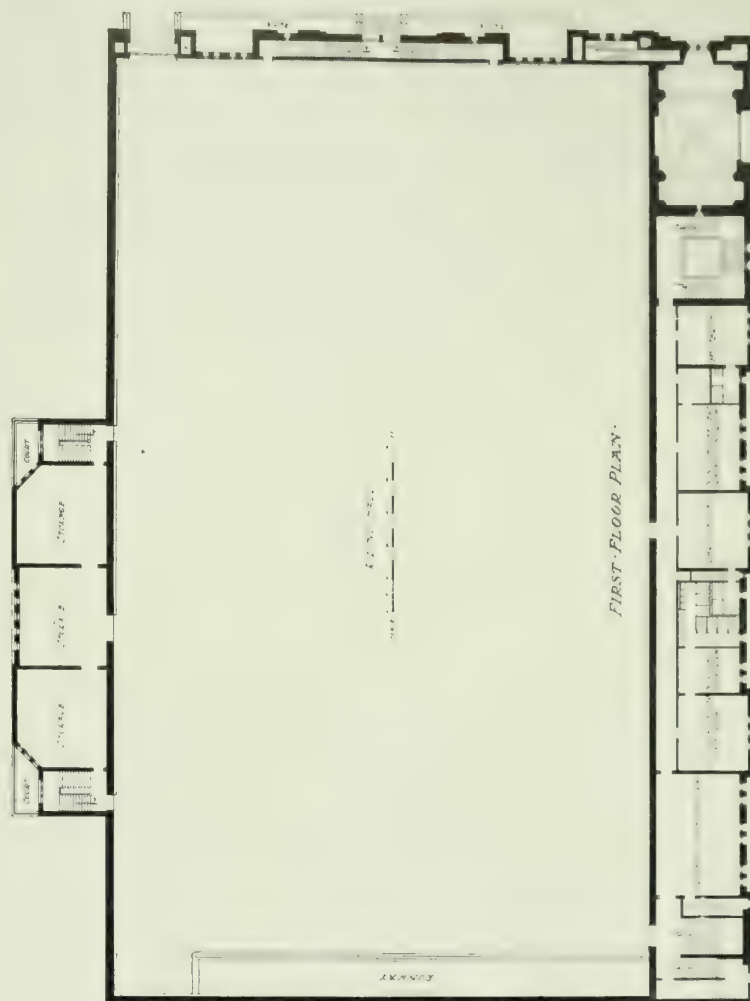


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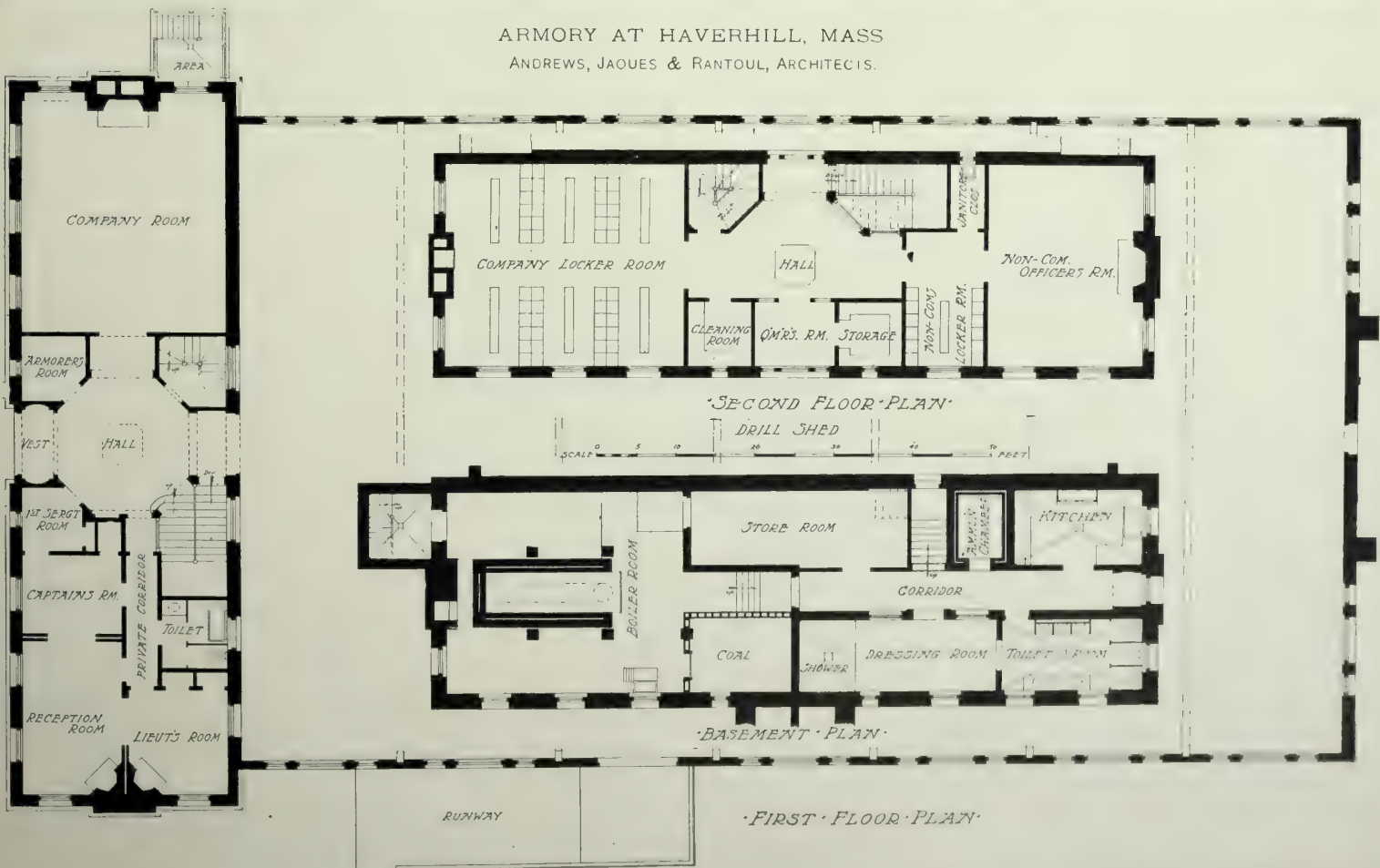


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THE BRICKBUILDER

VOLUME XVII

SEPTEMBER 1908

NUMBER 9

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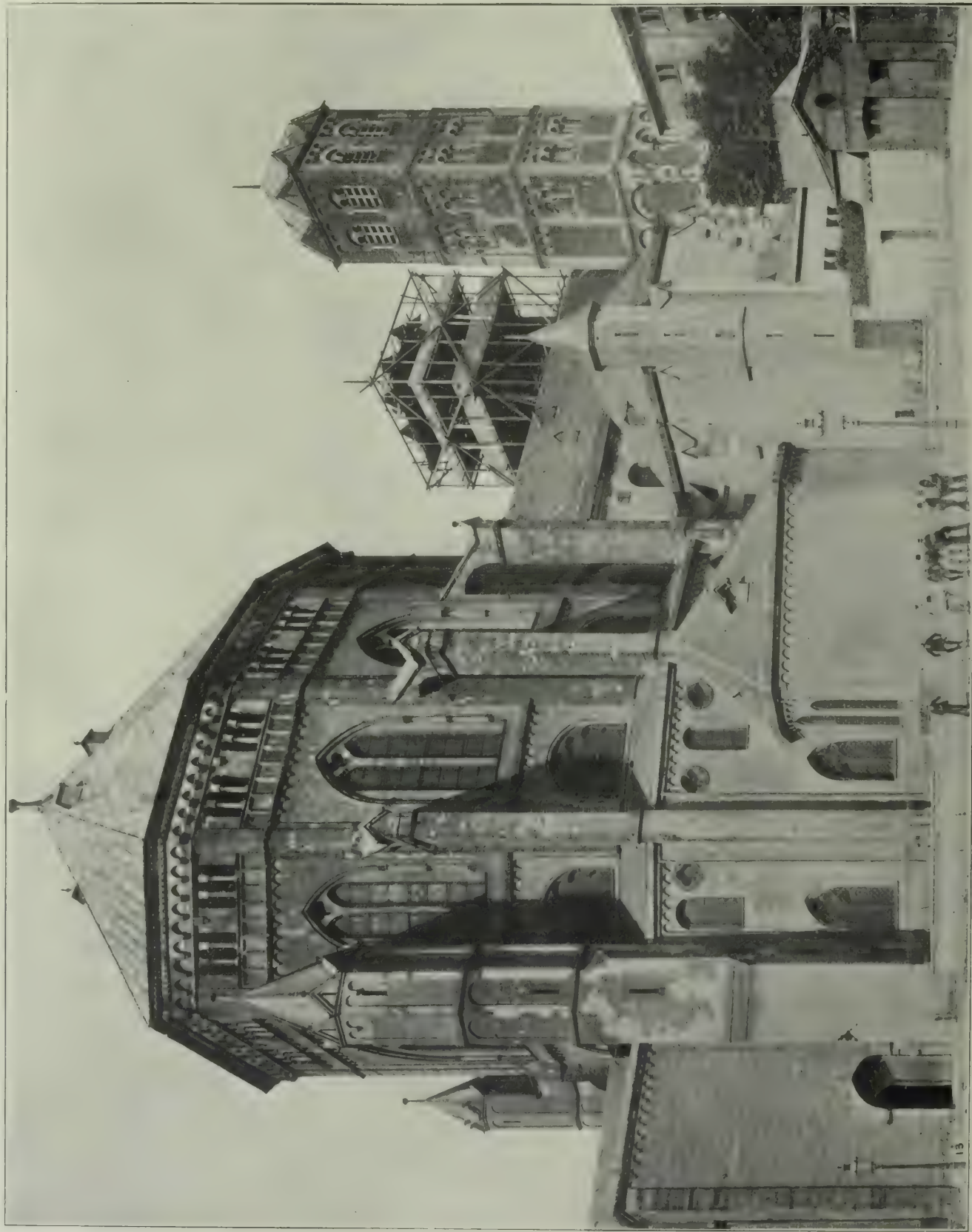
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CHURCH OF ST. GEREON, COLOGNE, GERMANY.

THE BRICKBUILDER

VOL. 17 NO. 9

DEVOTED TO THE INTERESTS OF ARCHITECTURE IN MATERIALS OF CLAY

SEPTEMBER 1908

Sanatoria for Consumptives.

BY T. MACLAREN.

THE trend of medical opinion, as to how the cure of tuberculosis can best be furthered, will necessarily be the chief factor in the development of the best type or types of sanatoria plans. The requirements of various classes, and of invalids at the various stages of the disease call for special consideration, but hitherto sanatoria planned on hotel or hospital lines have largely prevailed, regardless of these considerations.

Dr. E. L. Trudeau remarks that, "wards and pavilions, for many reasons, are much more practical in dealing with the lower and less sensitive class of patients, but for the middle classes and for people of refinement who object to being put in wards or pavilions, and who require a certain amount of privacy, the cottage plan is the ideal one." For working-class patients it is claimed by others that their best interests may be most wisely met in simple and inexpensive colonies on the tent or cottage system, according to climatic or other considerations.

Sir William Broadbent, Dr. R. W. Philip and Dr. Charles Reinhart have stated, in a general way, that the best and most effective way of dealing with pulmonary tuberculosis is by a sanatorium arranged on a system of detached sleeping huts or chalets, and in this connection the *London Builder* of December 5, 1903, remarks: "The interesting point for architects to note is that at length weighty medical opinion is pronouncing in favor of a system, which is the antithesis of the German hotel-like sanatoria, and the great hospital structures which have been, and unfortunately still are, being built all over England, and it is essential that the greatest care should be exercised in planning them on the most economical and effective lines."

The author of the third premiated design in the competition for the King Edward Sanatorium at Midhurst, England, in his report, expressed himself thus: "The ideal sanatorium consists of a series of isolated huts, with windows on all four sides, but for a sanatorium of one hundred beds the difficulties of heating, of

carrying meals, and of supervision over so large an area, render the scheme impossible, with due regard to economy."

That there should be professional prejudice, both architectural and medical, in favor of "hospital lines" is natural. It has often been stated that separate cottages are cheaper; unless the character of construction of the cottages is inferior, in which case maintenance is costly,

the provision of proper lavatory accommodations, heating, etc., may warrant a doubt on this point, but it can scarcely be denied that this arrangement tends to increase working expenses, and renders supervision more difficult.

To devise the ideal sanatorium plan in accordance with medical and constructional requirements is the problem confronting architects, who will necessarily be guided by medical opinion on two points: first, the most effective methods of combating the disease; and second, the best methods of housing both the various classes of people, and patients at different stages of the disease. It may be that the future will develop sanatoria, consisting of a portion on hospital lines, for those seriously ill and in need of special care, and the other portion on the cottage or isolated hut or tent plan, for the patients in incipient stages.

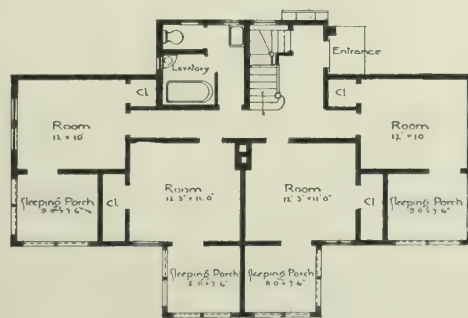
The unanimity of medical opinion on one point, viz.: the effectiveness of the open air treatment for the cure of tuberculosis has compelled in recent attempts at plans on hospital lines the insertion of sleeping porches as the starting point of such plans, and it is

necessarily the starting point in planning the cottage unit in the other system. Climatic conditions in certain localities would probably necessitate the connection of cottages by a covered way to the central administrative building.

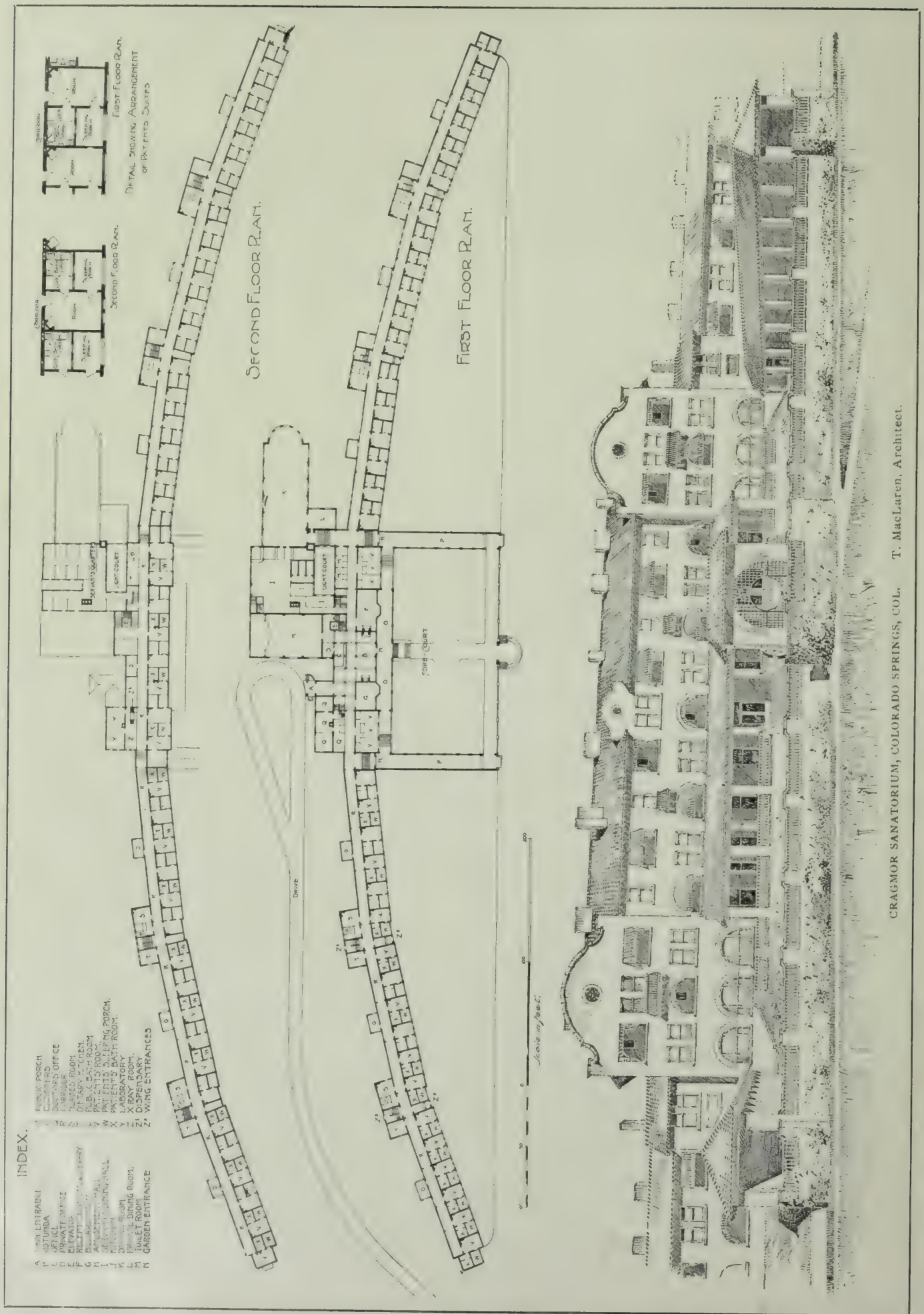
Galton in his work, "Healthy Hospitals," remarks: "Second only to air, are light and sunshine essential for growth and health, and they are Nature's most



COTTAGE, CRAGMOR SANATORIUM, COLORADO SPRINGS, COL.
MacLaren & Thomas, Architects.



TYPICAL FLOOR PLAN.
COTTAGE, CRAGMOR SANATORIUM.



Cragmor Sanatorium, Colorado Springs, Col. T. MacLaren, Architect.

powerful assistants in enabling the body to throw off those conditions which we call disease. Not only daylight but sunlight; indeed, fresh, pure air must be sun warmed, sun-penetrated air."

The ideal way to obtain these conditions would appear to be a tent, well ventilated and provided with windows for the direct admission of sunlight, and the canvas would permit of perfect penetration of light. While a tent, pure and simple, can be safely used by an individual and set alongside a residence, as is so often done, the problem of using groups of tents as part of a sanatorium is more difficult, owing to fire risks. In some instances, tents with roofs of permanent material have been used with very considerable success, and they have the advantage of being economical, and the more temporary parts, the canvas sides, can be easily and cheaply renewed. The difficulties to be overcome in a sanatorium composed of tents, however, are lavatory conveniences, heating and administration.

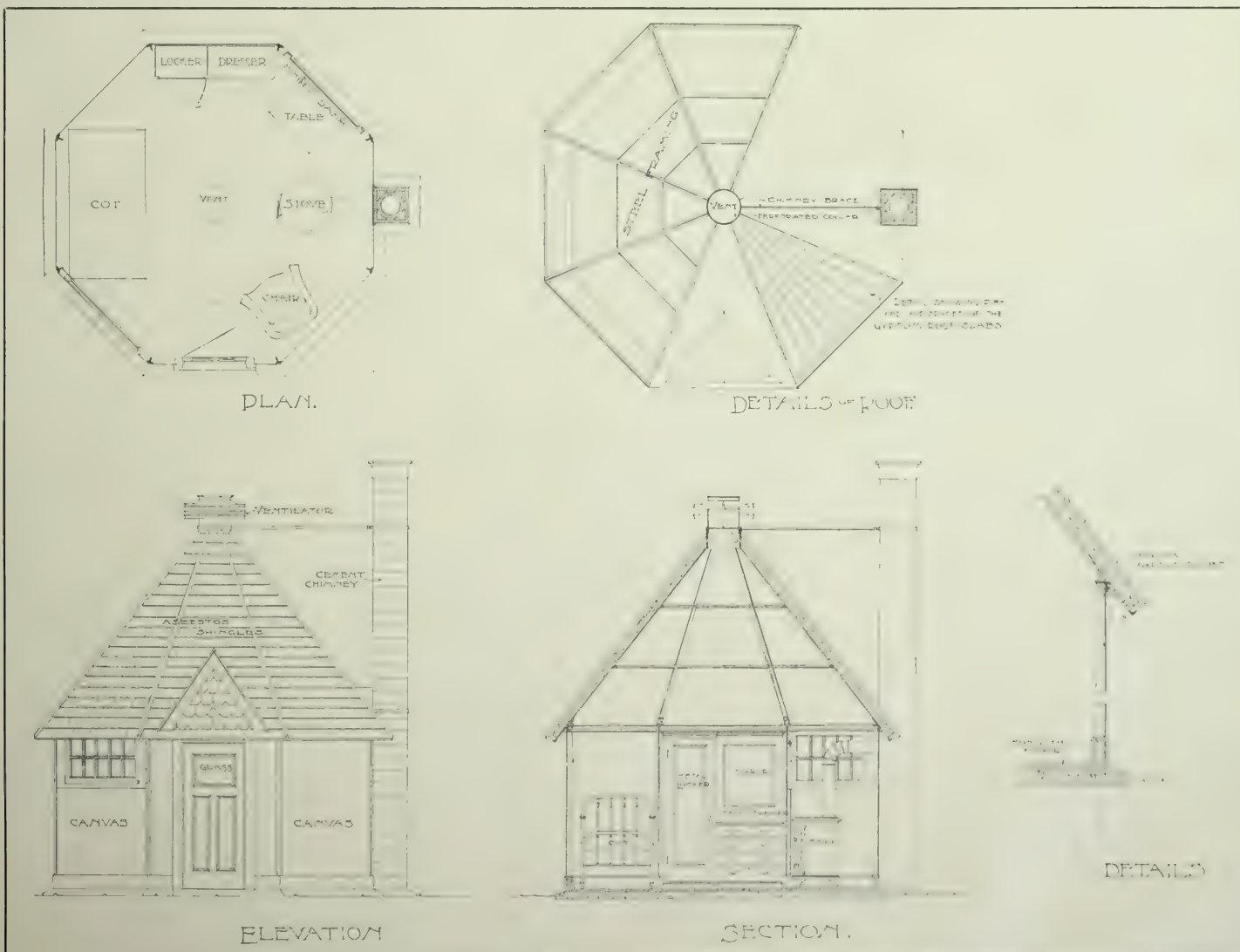


NORDRACH RANCH SANATORIUM, COLORADO SPRINGS.

Most sanatoria hitherto built have been placed in a haphazard fashion as regards the obtaining of the maximum of sunshine in the rooms. In a paper on "The Orientation of Buildings and of Streets in Relation to Sunlight," by William Atkinson, architect, Boston, he gives diagrams showing the proportions of sunshine entering rooms facing the different points of the compass, at the periods of March and September, with

the following results: to the N. E. and N. W. 17-37, to east and west 81-63, to the south 80-56 and to the S. E. and S. W. 104-68. While considerations such as the contour of a particular site, or shelter, or the avoidance of cold winds in special localities, have influenced the placing of a building, the fact of the greater proportion of sunshine from the southeast or southwest does not appear to have been fully appreciated.

In looking over various plans of sanatoria few are found to face southeast or southwest. Ruppertshain, near Konigstein, Germany, faces southeast. Basel San-



NORDRACH RANCH TENT.

atorium, Davos, Switzerland, faces southwest, and the center portion only of Hohenhonnef in the Siebenbirge, Germany, faces southwest. In England, the King Edward VII Sanatorium at Midhurst faces almost south, with slightly projecting wings forming very obtuse angles with center portion of building. These projections are evidently made with a view of obtaining some shelter.

The only recent example nearly approaching the ideal in respect of obtaining the maximum of sunshine in the rooms, is that of "Heatherside" at Frimley, England, by Edwin T. Hall, architect, plan of which was illustrated in *THE BRICKBUILDER* of April, 1907. This is a two-storied building, the center part faces south and is mainly

tinuous porch runs in front of the rooms, of moderate depth, just enough to protect and accommodate the patient without excluding the sunshine from the bedrooms, and to assist this the porch openings are made as wide and high as possible. The intention is that patients will nearly always sleep on the porch, and with this in view it is made divisible by means of curtains made of heavy canvas the full width of porch and extending from the floor to a height of seven feet. The ends of curtains next the walls are fastened tight with cleats and the outer ends are fastened to rings in porch posts with straps about one foot apart drawn tight to prevent flapping. The openings in the towers at ends of sleeping porches are provided with French windows to prevent the wind



AGNES MEMORIAL SANATORIUM, DENVER, COL. Gove & Walsh, Architects.

administrative, containing offices, public rooms, twelve beds for patients requiring special attention, and four radial pavilions containing twenty-two patients' beds each. Had these radial pavilions been set at angles of 45 degrees instead of slightly less, all rooms would have faced exactly southeast and southwest. The radial pavilion idea is excellent for administration and supervision.

As regards the windows in rooms, Dr. F. R. Walters recommends that at least one-half of one side of each room should consist of window space.

The type of plan of sanatorium consisting of a corridor with rooms on each side has been abandoned as not conducive to the best results, and it is further recommended that even with the single line of rooms there should be ample windows in the corridor with corresponding openings in the walls of rooms so that a thorough circulation of air can be obtained. But it is evident, if the starting point is made to obtain rooms facing as nearly southeast and southwest as possible, that this would eliminate any possibility of the plan with a double row of rooms.

Where climatic conditions permit, open air sleeping porches should certainly obtain. From the fact that an open air sleeping gallery is provided in the North London Consumption Hospital and that in Colorado, sleeping porches are used in zero weather it would scarcely seem that climatic conditions imposed limitations on the idea.

The Agnes (Phipps) Memorial Sanatorium, Denver, Col., was the first example on a large scale in Colorado, of the hospital plan modified by the insertion of sleeping porches. It consists of a central administrative building connected by corridors to two two-storied pavilions containing accommodation for forty patients each. A con-

sweeping lengthwise of the porches, and at the same time making comfortable little sun rooms.

Important points in the construction of pavilions are:

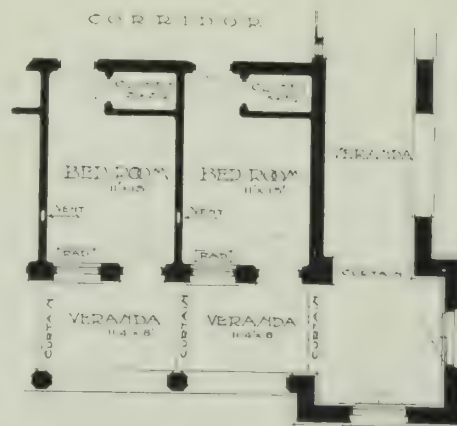
1. The elimination of all wood trim in the rooms; all corners and angles rounded; floors of quarter sawed yellow pine filled and varnished and the walls and ceiling painted.
2. Wide door between room and porch so as to permit of cot passing through.
3. Stud partitions between rooms doubled and insulated with hair felt, making them sound proof.

4. Rooms heated by steam through direct-indirect radiator, and ventilated through flues placed near the floor and carried up to the attic where they connect with galvanized iron ducts. These ducts are proportioned to the intakes and carried to the center of the building, opening into a large heated chamber directly under a cupola.

The addition now being built to the Glockner Sanatorium, Colorado Springs, Col., provides sleeping porches and a system of baths between the rooms for the accommodation of the better class of tubercular patients.

The sides of sleeping porches are provided with sashes which slide down into pockets, and adjustable shades are used inside to regulate the light. The doors between rooms and sleeping porches are, as in the Agnes Memorial Home, made wide enough for beds or cots to pass through. The floors of corridors are deafened by means of a double set of joists, clear of each other.

The plan of the proposed Sanatorium, Cragmor, Colorado Springs, was prepared according to directions of the late Dr. S. Edwin Solly and is designed to accommodate the best class of patients, and as the climate of Colorado



DETAIL SHOWING PATIENT'S UNIT, THE AGNES MEMORIAL SANATORIUM, DENVER.

is peculiarly favorable to the open-air treatment, the sleeping porches have governed the idea of the scheme. The building will face southwest.

The center portion of the building contains on the first floor mainly administrative and public rooms, and the two upper stories, patients' rooms. The wings are two story and contain patients' rooms, nurses' rooms and dietary kitchens.

The unit of patient's suite consists of a sleeping porch, private bath and a room with a fireplace, — this latter being a dressing-room rather than a bedroom, — the idea being that patients will sleep on the porch. Cross ventilation to the rooms is obtained by the windows on the two sides, and each bath-room has a special ventilating flue. To prevent stagnation of air in the inner corners of sleeping porches, vent flues in side walls are proposed. To reduce to the minimum the disturbance of one patient by the coughing of another, the sleeping porches are separated both vertically and horizontally. No porch is built over another, and none adjoin, each having a room intervening.

The Cottage Sanatorium at Cragmor, Colorado Springs, is an attempt at a compromise between the sanatorium on hospital lines and the plan of a central building with single hut or tent accommodations for patients. It consists of the central administrative building with cottages for men and women placed on either side at moderate distances from central building and from each other and is possible of extension by simply repeating the cottage buildings.

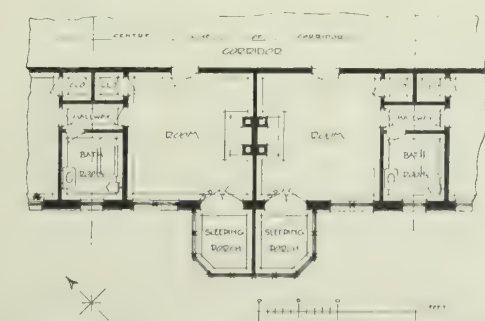
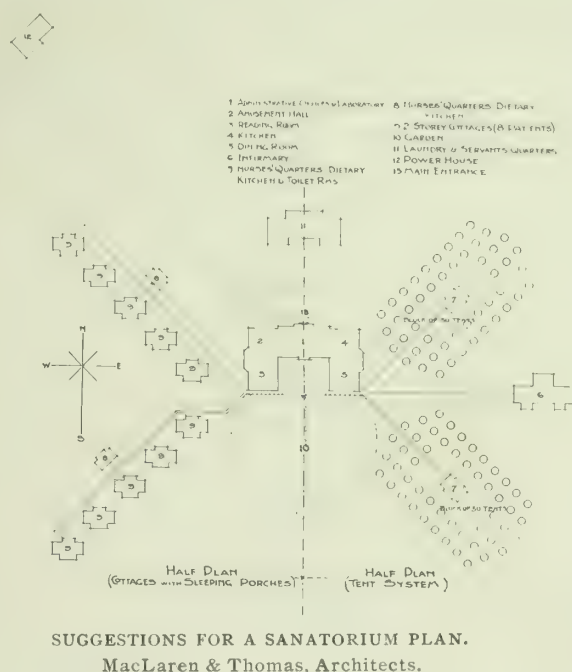
The problem lay in determining the arrangement and the number of patients to be accommodated in the cottage unit and to obtain sleeping porches with two open sides. Each cottage is two stories in height, the rooms have all good direct light and are intended for dressing-rooms rather than bedrooms. No attempt has been made to obtain complete isolation of sleeping porches, and so far no complaints have been made of the coughing of one patient disturbing another. Should this occur, patients so disturbing could be located in the second-story corner suites. The sides of porches are provided with adjustable curtains. The scheme has been largely experimental, and therefore the utmost economy was observed in construction, — the central building, for instance, being an old cottage re-modelled and extended. All the buildings are frame, and the heating is by hot-air furnaces. At present the principal accommodations are two cottages containing eight rooms each.

In the Nordrach Ranch Sanatorium, Colorado Springs,

Col., patients' accommodations are provided entirely in tents and the open-air treatment is here carried out to its fullest extent. The following description is by Dr. John E. White, President and Medical Director:

"The tent colony at the Nordrach Ranch Sanatorium begins about 75 feet from the central building and consists of nine 25-foot terraces, 200 feet long, running parallel to each other. Each terrace accommodates eight Nordrach tents, 25 feet apart. The terraces are supported with rough stone walls and with the cement sidewalks, trees, lawns and flower gardens, a very attractive effect is secured. The nurses' tents are located in the village of tents and at the head of every bed is an electric bell which is connected with the nurses' tents. There is also a system of private telephones connecting the various departments, one of which communicates with the doctor's tent. In one corner of the tent colony there is a two-story frame building containing janitor's room, outside lavatories for men and women, together with coal and woodbins. It is only possible

to carry out the open-air treatment to its fullest extent in a well-constructed tent. The ordinary type is not sufficient, — there is not enough ventilation through the canvas itself to supply the required amount of fresh air. A tent must have special ventilating features. The Nordrach tent is octagonal in shape, with shingle roof, oiled floor and strong army canvas on the sides. A galvanized stationary ventilator, shaped somewhat like an umbrella, fits into the apex of the tent and can be opened or closed by means of a damper controlled by a cord fastened usually to the head of the bed. In addition there are two good-sized windows in each tent on opposite sides of the octagon. The furnishings are the same as would be used in a chamber in the house, namely, a white iron bed, plenty of soft, warm bedding, a bureau, toilet table, rugs, chairs and a stove. The wardrobe washstand is built into the tent itself. The fires are built by the attendants before patients go to their tents at night and the ventilators are closed until after retiring when they are opened and all have a deep, refreshing sleep, with scarcely a cough, whereas if patients were in the closed rooms of houses they would probably cough all night. The fires are built again in the morning before patients arise, and tents are warmer and more comfortable than the rooms in most houses. The strongest winds never make the least impression on the tents, as their octagonal shape renders it impossible for the wind to get a purchase upon them. Our tent life is



TYPICAL PLAN OF PATIENTS' SUITES, GLOCKNER
SANATORIUM, COLORADO SPRINGS, COL.
George M. Bryson, Architect.

more than satisfactory in every way, and the results that we are obtaining are very gratifying."

The Nordrach tent illustrated while not exactly like the one in use there follows closely its design but is modified in construction with a view to making it a permanent and as nearly as possible fireproof structure and requires only periodical renewal of the canvas sides.

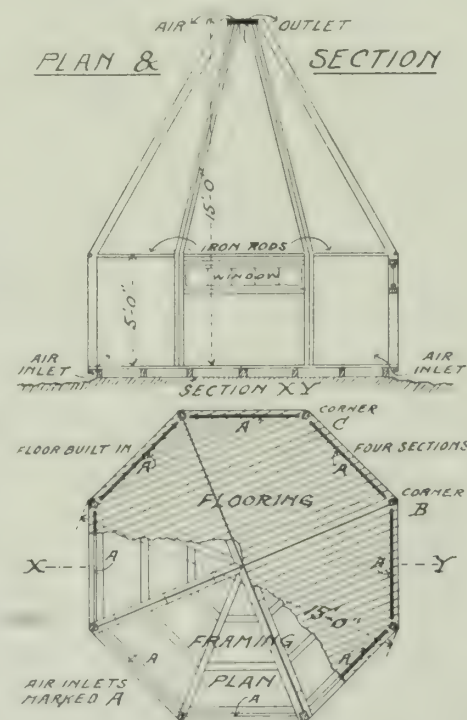
A steel frame work of Ts and angles is proposed, with hollow ventilated roof of gypsum slabs covered with asbestos shingles. The floor is formed of monolith. The flue from stove is hollow concrete construction. In all other respects it is similar to that described by Dr. White.

Groups of these tents could with advantage be steam heated from a central system, and not only eliminate the smoke from the colony but practically the only danger from fire.

The following is a description of the Gardiner Sanatory Tent by Dr. C. F. Gardiner:

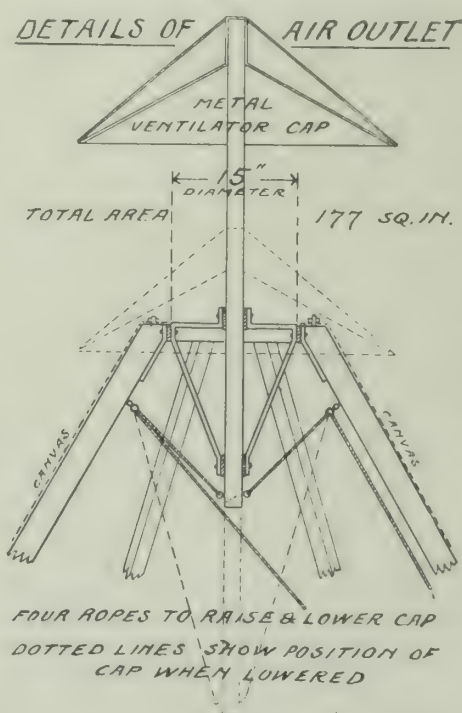
"The tent is of dark khaki twelve-ounce duck, stretched over an eight-sided framework of wood, without any center pole and without pegs and guyropes, so that it stands firm, like a house. The floor is raised eight inches from the ground, and is in sections so that it can be easily moved. The lower edge of the wall is fastened several inches below the floor and one inch out from it all around. This is to insure at all

times an inflow of air that is gradual and without draughts, since this inch space in a circular tent represents an area of 520 square inches, and the hole in the top for overflowing air has an area of some 177 square inches. In this way the tent cannot be closed and is ventilated automatically and constantly. There are small shutters so constructed that they can partially close the opening from within the tent in case of very high winds. The opening at the top of the tent is covered by a zinc cone, which can be controlled by pulleys and rope within the tent, in stormy weather being drawn to within an inch of the tent roof. The heating is by a central draught, circular stove, which burns either wood or coal and can be so regulated as to keep a good fire without care, for ten hours. The stove is of such a size as to thoroughly warm the tent under any conditions and at the same time it is impossible to overheat the air or interfere with ventilation.



GARDINER SANATORY TENT. SIZE FIFTEEN FEET.

The more heat used, the greater the displacement of heated air upward, and a more rapid interchange of air at once occurs. As the heated air can escape at the top, the fresh air can always enter at the bottom of tent. This is automatic and is not under the control of the invalid. A small window, which does not open is used in these tents. It is placed horizontally and is 1 foot by 6 feet. The floor being about eight inches from the ground there is very little fear of dampness. It is, of course, more comfortable and practical for an invalid to live in tents during the winter in a climatic dry belt such as Colorado, Mexico, Arizona and some parts of California, but they have been used with success in Massachusetts, Oregon, New York and probably in many other places. Sanatory tents, or, if preferred, sanatory tent houses, can be used as part of a general sanatorium; a main building being used as a heating, dining and administration building, and surrounded by the tents."



Suggestions for two types of plan are here offered, one being a system of detached cottages, and the other groups of tents, the central building and infirmary being the same in either case.

Of the cottage plan the unit would be similar to that of Cragmor Cottage Sanatorium, which is two story and accommodates eight patients in all. The cottages are so placed as to cause the two open sides of each sleeping porch

to face south and east and south and west and the rooms behind the sleeping porches are well lighted, especially those at either end, which have south and east and south and west windows. The aspect of the cottage unit having been determined by the foregoing conditions, the placing of the units in their relation to each other has been governed by the following considerations: far enough apart so that the shadow of one will not strike the other; ample circulation of air around each cottage; clear views and privacy. The entrances to these cottages being at the back confines traffic to that side, and thus there is the desirable quiet in front of sleeping porches. Nurses' quarters and a dietary kitchen are provided with each group of five cottages. In certain climates the cottages could, if necessary, be connected to each other and to the central building by a covered way.

In the plan on tent system, the tents are arranged in groups of fifty or sixty as a maximum. Each group of

tents is arranged around a kind of quadrangle, in the center of which is a small building containing accommodations for two nurses, a dietary kitchen, bath and toilet rooms. To this building would be connected the bells from all the tents in one group.

Each group would to a certain degree be independent of the rest of the institution. The tents are arranged with a view to as little interference with each other as possible, in regard to air, light or view. The tent suggested would be the modified Nordrach Tent, as illustrated, 12 feet diameter and 25 feet on centers, with windows placed on southeast or southwest faces.

The cottages or tents would be steam heated from a

central system. Both cottages and tents are placed on radial lines, facilitating supervision, and large future extensions are obviously easy.

The infirmary building for the seriously ill would be laid out on the principle of the cottage unit on a larger scale. In the central building the rooms frequented by invalids would have light on the southeast and southwest sides. The power house and heating plant would be as far removed as practicable from the sanatorium proper, and the main entrance and drive thereto would be at the back of the building, thus insuring freedom from dust and noise, to all the frontages of the buildings.

The Contagious Hospital.

BY EDWARD F. STEVENS.

IN many states there is a law requiring cities or large towns to be provided with hospitals for the care of contagious diseases. In Massachusetts the statute reads (Chapter 75, Section 40):

"Each city shall establish and be constantly provided, within its limits, with one or more isolation hospitals for the reception of persons having smallpox or any other disease dangerous to the public health. Such hospitals shall be subject to the orders and regulations of the boards of health of the cities in which they are respectively situated. A city which, upon request of the state board of health, refuses or neglects to comply with the provisions of this section shall forfeit not more than five hundred dollars for each refusal or neglect."

Many cities and a few of the larger towns are provided with commodious, well-planned contagious hospitals, while others are provided with buildings hardly worthy of the name of "hospital," and often called "pest houses," where those afflicted with contagious diseases are treated. These buildings are usually old houses pressed into service in the time of an epidemic, or buildings put up hastily under the same pressure, with the argument that when they are too much infected they can be burned down.

Some suburban towns have excellent contagious hospitals, but most of them can care for but two diseases at a time, and if there are two cases of scarlet fever and one of diphtheria in the hospital patients must be kept in separate buildings and attended by separate nurses. There must, of course, be a night nurse as well as a day nurse for each disease. If, while these two or three isolated cases are in the hospital, several cases of measles or erysipelas develop in the town and ask admission to the hospital, these newer cases must either have separate buildings or the older cases must be bundled out and, after a thorough disinfection process, the new ones admitted; or if a suspected case is brought in the patient may be kept in the suspect ward for a day or two, then placed in the general ward with others who have the disease he is supposed to have, only to find after another day that there was a mistake in the diagnosis, but too late to prevent infection.

To guard against this last named difficulty and to provide for the major and what might be called the minor contagious diseases, the present policy would call for a building with maximum capacity for each disease and sufficient suspect wards for each department, each with its own diet, toilet, linen and medicine rooms; also a

separate department for each sex. With the larger city hospitals this can and should be carried out. But for the town supporting a 50-75-bed general hospital and with a need of a maximum 18-20 beds for all contagious diseases such subdivision is impossible. How then can the smaller communities provide adequate and safe care for those intrusted to them?

The question has often arisen in the mind of the writer, as it has doubtless with thousands of others, if the attending physician can safely go from scarlet fever to diphtheria, from measles to typhoid, from smallpox to pneumonia, from one house to another, with apparently perfect safety to the other patients, why cannot a nurse or an attendant, with the same precaution, attend to the wants of patients with different contagious diseases? This was never satisfactorily answered until the writer, visiting a hospital in Paris designed by Dr. Louis Pasteur,—was shown a man ill with African sleeping disease while in the adjoining bed was a man with erysipelas, adjoining this a boy with scarlet fever, all separated by glass partitions but visible and under the eye of the attending nurse. Next to these patients was a three-bed ward with three boys convalescing from diphtheria, and so on around the entire building, holding some eighteen or twenty patients, all visible from the main corridor yet separated from it and from each other.

The patient is taken directly to any room and whatever the development of the disease is completely isolated from all others. The nurse on entering the door puts on the gown kept in that room, covering her other clothes and her hair. After attending to the wants of the patient she thoroughly cleanses her hands at the sink which is in each room, removes her gown, taking all precaution and observing all the rules of antisepsis. Should a patient desire a bath the portable tub is wheeled into the room, which is filled from the taps at the sink. The tub is afterwards sterilized and ready for the next patient.

In the same way the food is taken into the room and after the meal all dishes are sterilized before going back to the diet kitchen shelves.

The general rule of the town and city boards of health is to form a "dead line" around the hospital, forbidding anyone to venture beyond "this sign." Not so the Pasteur Hospital. A narrow balcony surrounds each building and on certain days or hours the friends of patients

are allowed to go to the windows of the rooms of their friends and talk to them and see what their condition may be without fear or danger from contagion.

With these practical results before him the writer has endeavored to work out a small hospital to accommodate ten to twenty patients where those afflicted with one contagious disease can be cared for without danger to those having another.

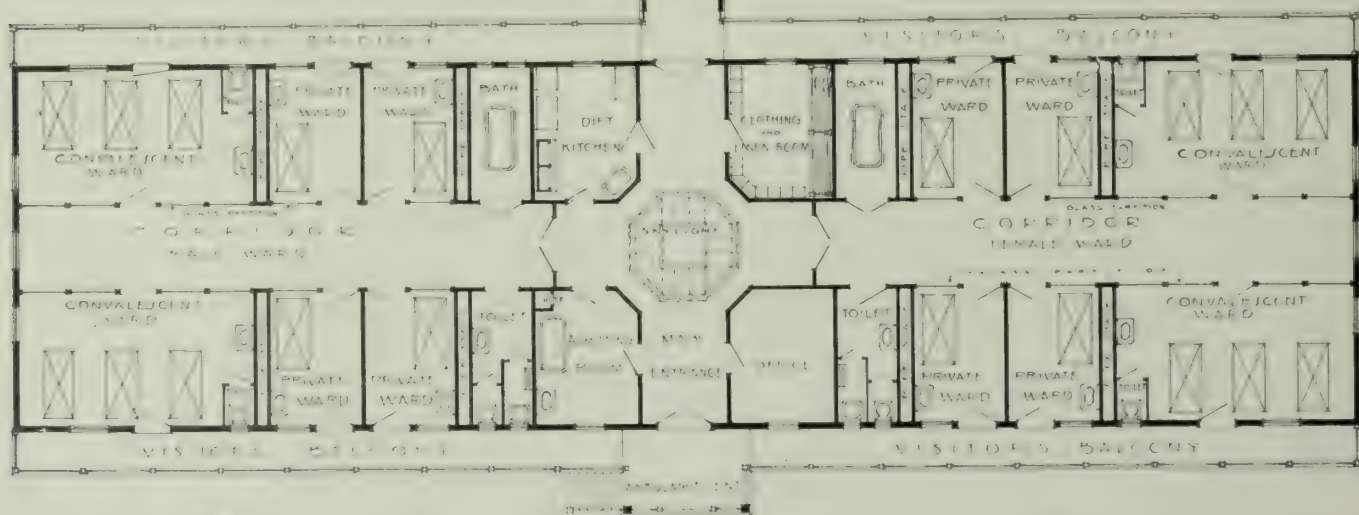
The plan is to provide for twelve to twenty beds,—half male and half female. One room admits all patients. Here the street clothes are removed, sent down a chute to the disinfecting or fumigating room in the basement. The patient can be bathed and clothed, with the hospital gown, covered with a disinfected sheet, placed on the wheel truck and taken to the

room assigned to him. The admitting room is then closed, disinfected and is ready for the next patient.

In the same way one diet kitchen provides food for all and one linen closet the linen. The rooms may have all of one disease or all different, the only division being the division of sexes in the two ends of the building. The single rooms may be used for either the more virulent or suspect cases and the large ward for convalescents. In the three bedrooms special toilets would be provided. Adjoining this building could be a small one-story building with kitchen,

dining-room for nurses, and sleeping and toilet rooms.

A hospital for contagious diseases was recently planned for a near-by city, in which sixteen patients will be cared for, and accommodation for four nurses is provided on the second floor, the cooking being brought from the main kitchen.



PLAN FOR ISOLATING HOSPITAL BUILDING.

Edward F. Stevens, Architect.



MAIN BUILDING, FREEDMENS HOSPITAL, WASHINGTON, D. C. Price & de Sibour, Architects.

The American Theater — X.

THE STAGE (*continued*).

BY CLARENCE H. BLACKALL.

THE accompanying illustrations of an actual rigging loft (Figs. 8 and 9) and fly galleries (Fig. 10), will serve to make this construction clear. The leading blocks in this case are set in light frames on an angle, the gridiron itself ending at the leading blocks. The illustrations will also give one an idea of the quantity of rope required, which is often many miles in total length.

In the fly gallery illustrated is shown the mechanism for operating curtains, which is of a most primitive character, consisting simply of three drums operated by man power. This is the usual arrangement. There are at least three curtains in a theater, the outer one made of asbestos or of steel, the next one, which is specifically called the main curtain, and a curtain which serves as an act drop. Sometimes a fourth curtain is added in the shape of a black velvet drapery intended to be lowered only when quick changes are to be made on the stage. This is really somewhat cumbersome and is not particularly desirable.

The height from the stage floor to the rigging loft must be such that any drop or border can be lifted entirely free from the top of the highest scene which is likely to be set on the stage. As a matter of fact the higher the stage-space the better the stage manager is pleased. Few scenes are ever more than twenty-five feet high. Consequently a height in the clear of fifty feet would seem to be sufficient, but sixty is a safe minimum and it is often made as much as seventy-five or one hundred. With a proscenium opening of over thirty-five feet and a height of gridiron of less than seventy, it is necessary to lift the curtain above the top of the gridiron. In this case the supports for the sheaves are either furnished by the roof beams or bracketed out from the proscenium wall. The method of supporting the curtains is precisely the same as for the scenery.

With the arrangements thus described the scenery constitutes a dead weight, every pound of which is moved by the pull of fly men. In European theaters the scenery is almost always counterweighted, and it is becoming quite generally the custom to counterweight the scenery in the best of the American houses. In such case the leads

from each scene are brought to a rod on which are threaded iron weights, the whole sliding in vertical guides against the side wall of the stage, and operated by an endless rope attached to the counterweight frame and running over pulleys at stage level and at gridiron, as shown by Figure 11.

In this case the hanging lines are carried over to the side wall of stage, not to the pin rail, and a scene can be operated from the stage level or from one of the fly galleries. A simpler but less convenient way is to dispense with the continuous hand rope, hitching the lead lines to a counter weight at fly gallery level after the scene has been hoisted in place and trimmed. This does not allow the scene batten to be lowered to the stage, but the scene can be hoisted to the gridiron if necessary, and the side walls at stage level are kept free of ropes or weights.

Several attempts have been made to apply hydraulic power to the operation of the scenes, and with perfect mechanical success, but the cost is very large, and is

seldom warranted by the results. In the Metropolitan Opera House, New York, electricity has been applied very successfully to moving portions of the scenery. On one of the left fly galleries is a series of drums, one for each of five of the lead lines in each entrance. Any one or more drums can be thrown in right or left gear with a main shaft on which is an electric motor. At the stage level, beside the prompt stand, is a small switch board with a rheostat handle and series of push

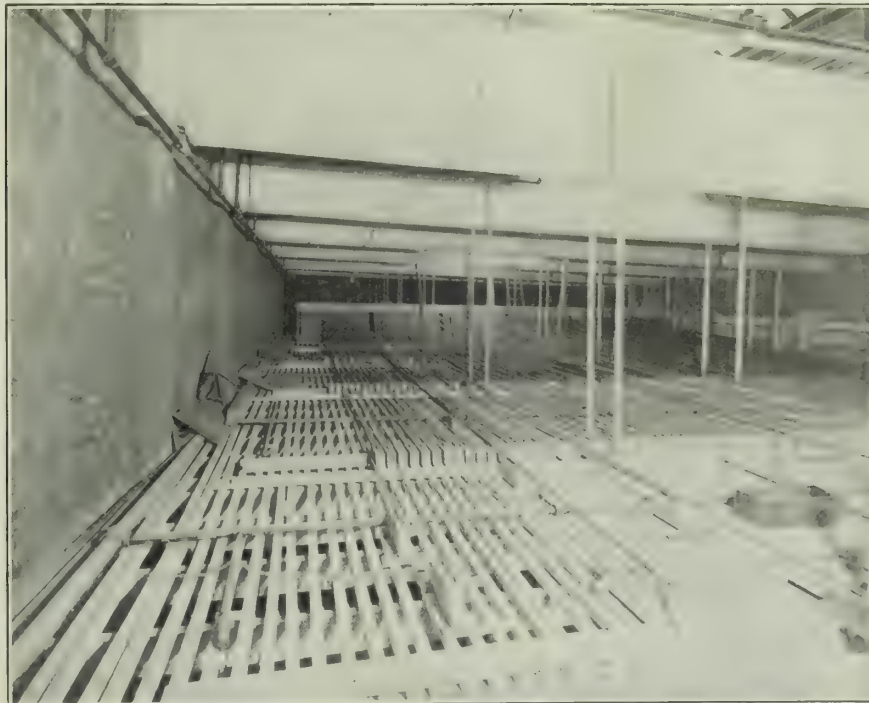


FIG. 8. RIGGING LOFT, COLONIAL THEATRE, BOSTON.

buttons, two for each drum. Pushing a button engages a corresponding drum on the fly gallery into the main driven shaft, so that the drum will either raise or lower the scene, while the rheostat handle starts the motor and regulates the speed. Any number of scenes can thus be raised or lowered simultaneously or in opposite directions. There are two motors and sets of drums, one for the curtains and the drops of the first entrance, and one for all the rest. This very ingenious mechanism was devised and installed by the Elevator Supply and Repair Company, and is shown by Figure 12.

The Hippodrome, New York, also has a limited electrical scene operating device. The ropes are led to drums on the fly gallery, and the power is transmitted from a mainshaft by beveled friction wheels, which are thrown in by hand by an operator stationed in the fly gallery. This theater also has five electric carriers working on overhead trolleys suspended from the grid-

iron, used for shifting heavy pieces of scenery. Each has a lifting capacity of about twelve hundred pounds.

In designing a proscenium it is quite customary to keep the actual constructive wall back a short distance from the curtain opening on each side, building out the lower portion of the proscenium of iron to withstand hard usage and carrying up the ornament of the proscenium opening in plaster. If proper provision is made therefor it is very easy to reserve a space immediately over the proscenium arch and in front of the curtain ropes, permitting of a light gallery to be thrown across from fly gallery to fly gallery. This is often a convenience in special effects and in repairing defects in the curtain mechanism. It is also highly desirable at times, to be able to reach the center of the space immediately over a border light, and for this purpose, a device which is quite common in Europe is sometimes used, consisting of a light gallery not over a foot and a half in width suspended from the rigging loft by light iron rods, the borders being suspended in turn from this bridge, and fed electrically by a cable leading out under the bridge. The border reflectors take up about a foot and a half. Consequently this space cannot be used for scenery, and a bridge of this kind might often be a great convenience.

To show the complexity of the foreign stage as compared with the American, sections are given here (Figs. 13 and 14) of the upper portion of the stage of the Court Theater, Vienna, which is, perhaps, the most elaborately equipped stage in the world.

A stage construction known as the Asphalia system was devised in Vienna some years



FIG. 9. HEAD BLOCKS, COLONIAL THEATER, BOSTON.

since. The entire depth of the stage is divided into sections about seven feet deep, each section extending the whole width of the curtain opening and one or two feet beyond on each side and being supported by hydraulic plungers so that any section of the stage could be lifted to any desired degree or set at any angle. Some sections were supported on single plungers so that a piece of flooring could be raised and then turned to a position at an angle with the curtain. The only theater in this country which has been equipped on this system is the Auditorium at Chicago. It is a luxury of stage construction which is appreciated to a limited extent by those who have it, but the cost is so great and the result in the main is really so little with our American methods of scenery building that few theater managers care to pay for it.

The proscenium wall is usually carried down underneath the stage on the curtain line. The projecting apron is generally open underneath so that for special attractions the orchestra pit can be floored over, extra seats put in, and the musicians stowed away under the stage. This is a very unsatisfactory arrangement from the standpoint of the audience, but means more profit for the house and sometimes has to be endured.

One of the most remarkable pieces of scene building was the ship which was built for the production of *L'Africaine* in the Paris Opera House. The stage represents a cross view of an East India liner looking towards the rear and the ship is crowded with hundreds of people. At a given time the ship is supposed to strike upon a rock and cants bodily to one side, throwing the mass and all the people at a

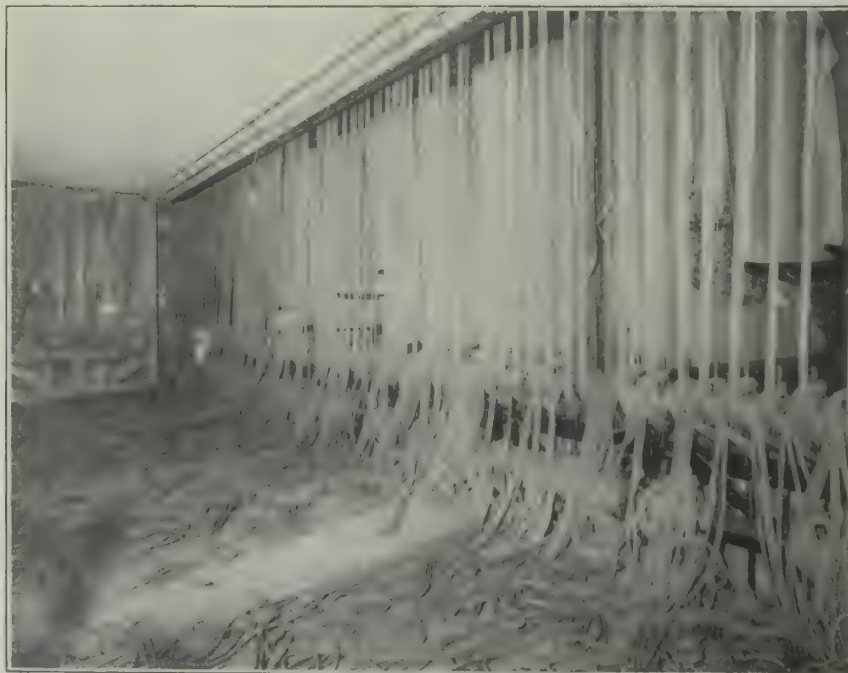
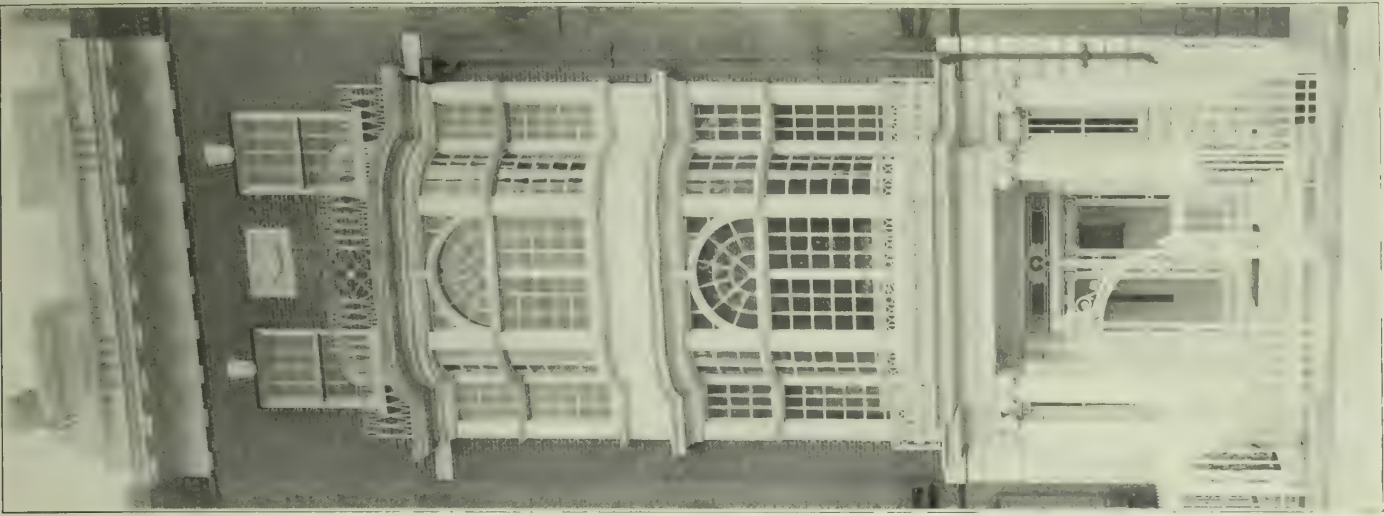


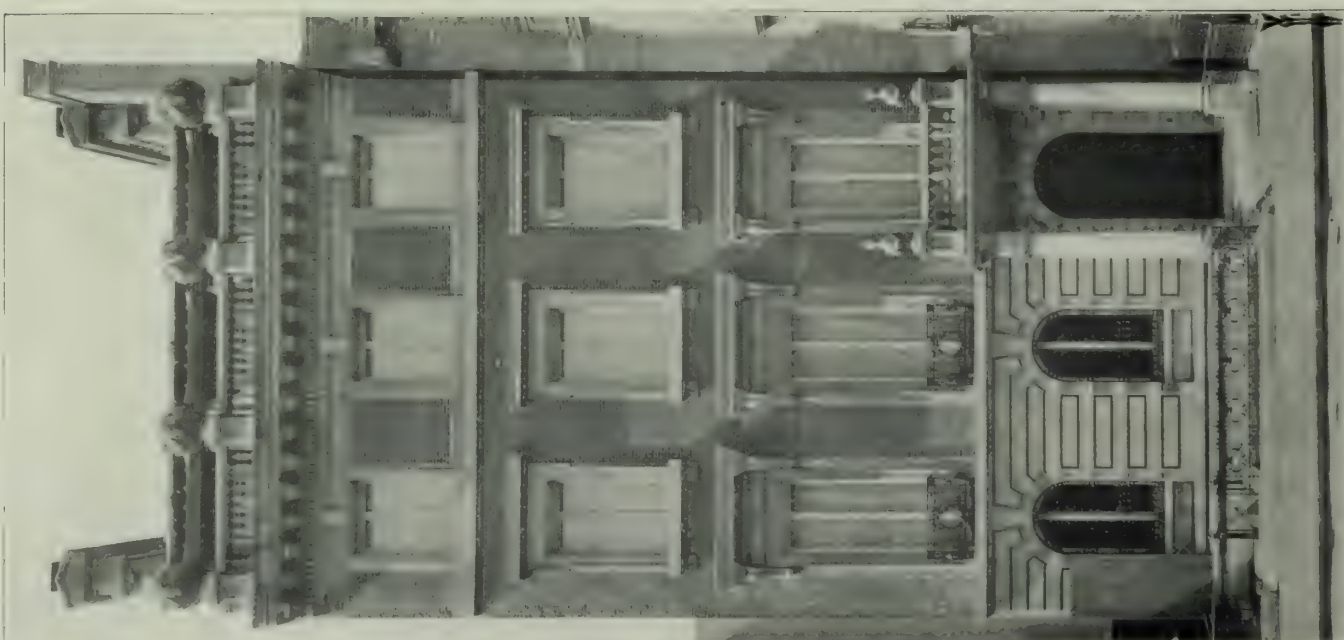
FIG. 10. FLY GALLERY, COLONIAL THEATER, BOSTON.



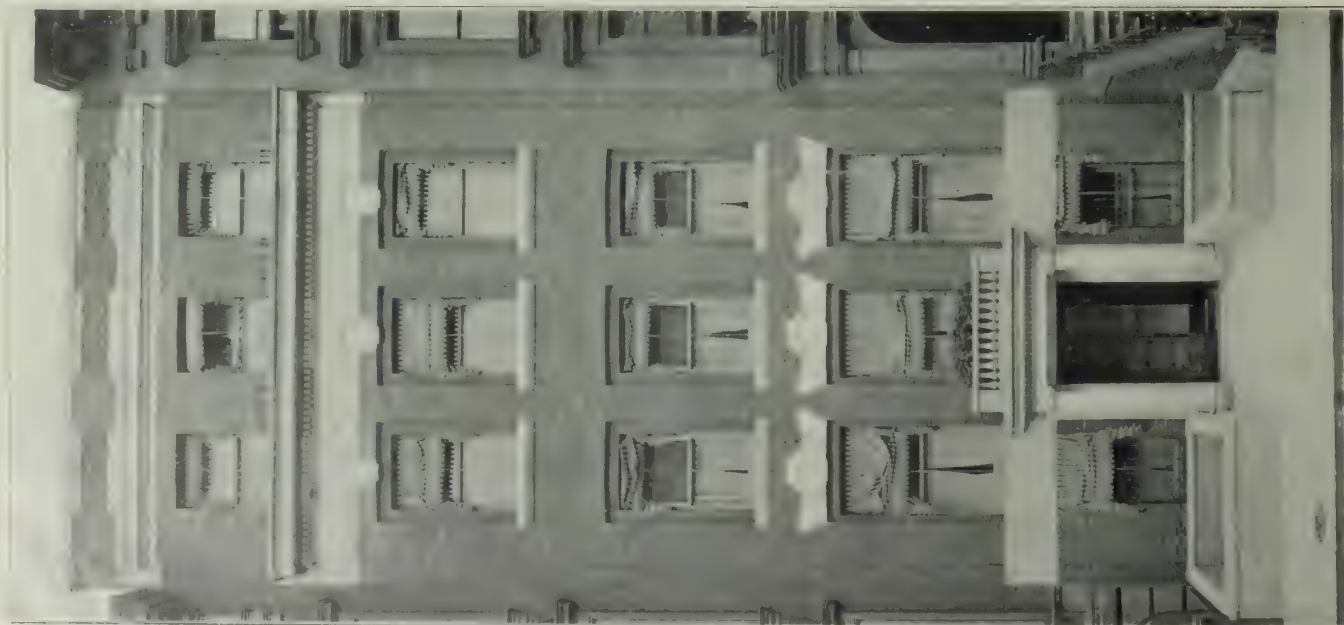
W. H. & S. W. CO. BROS.
NEW YORK



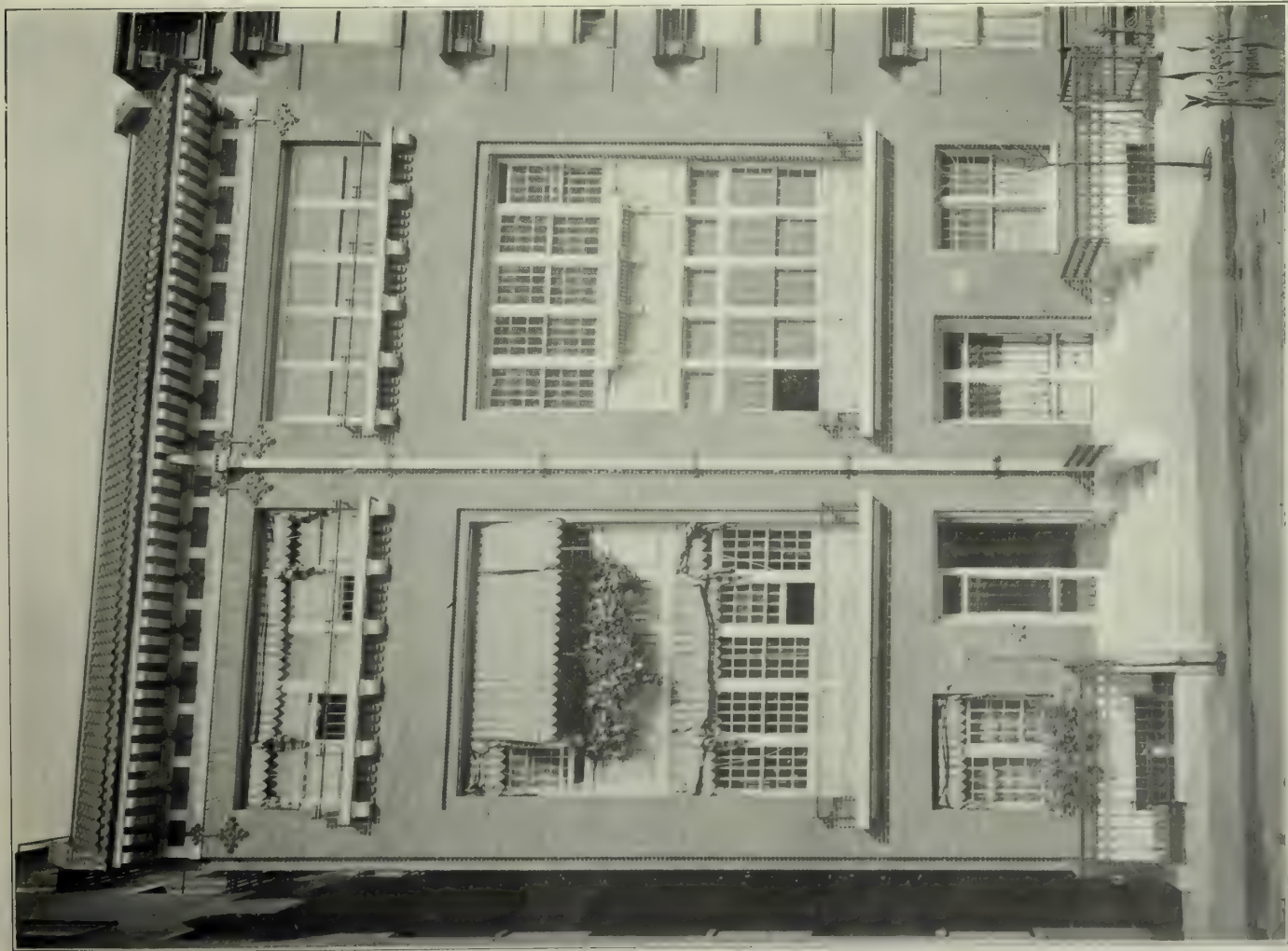
18 EAST 74TH STREET
GROSVENOR TERRACE, ARIZONA



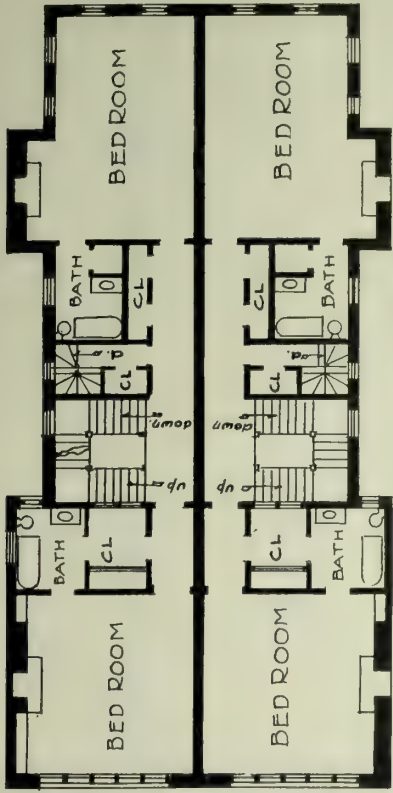
16 EAST 74TH STREET
WALTON & WETMORE, ARCHITECTS,
NEW YORK CITY HOUSES



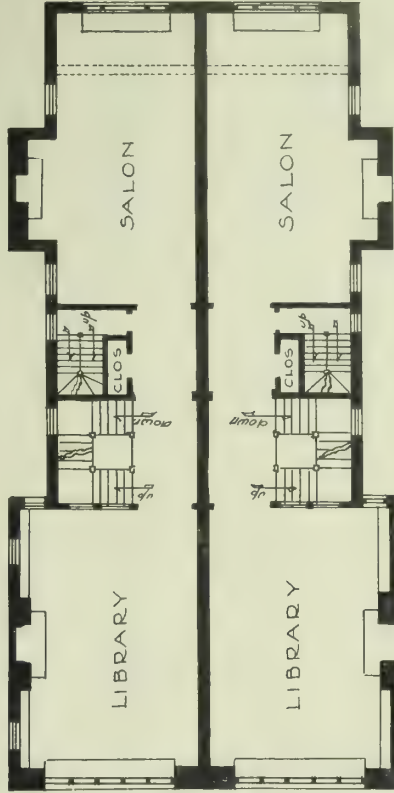
21 WEST 47TH STREET
GROSVENOR TERRACE, ARIZONA



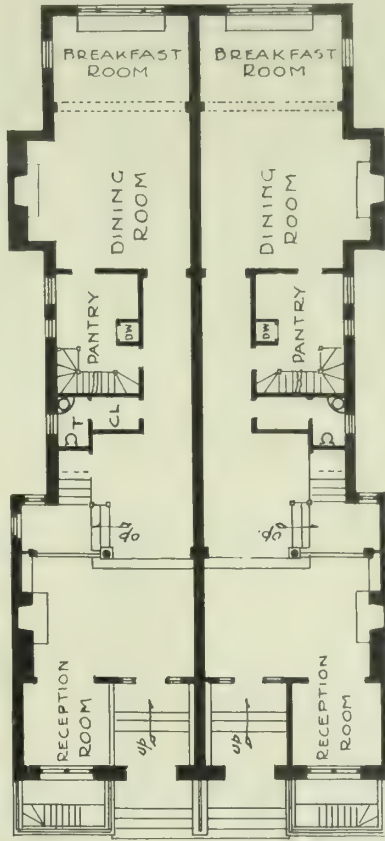
NEW YORK CITY HOUSES.



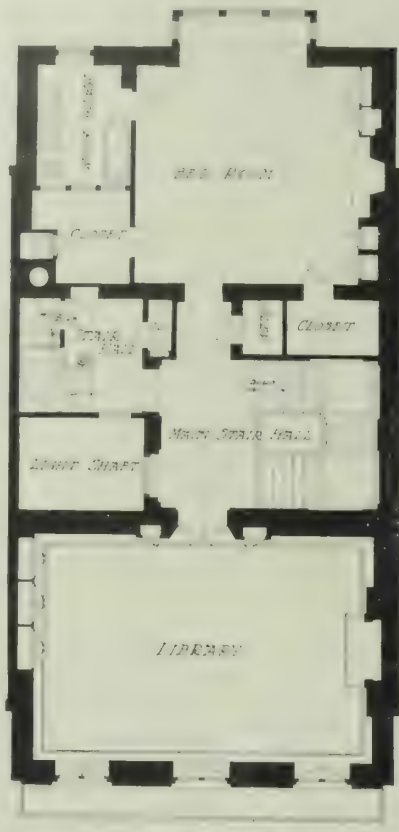
THIRD FLOOR.



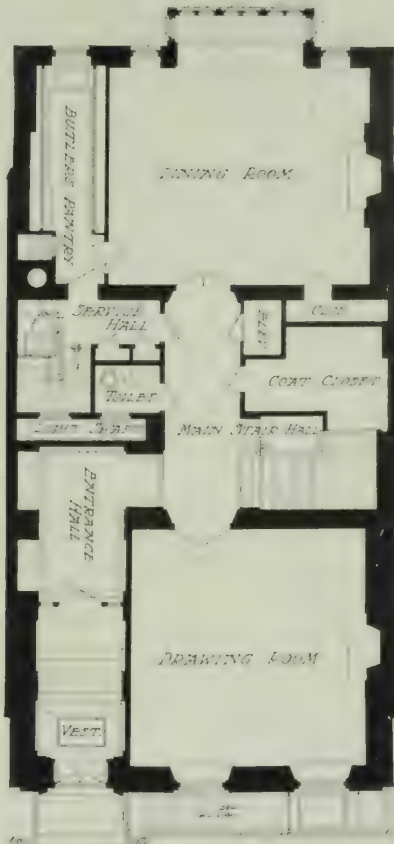
SECOND FLOOR.



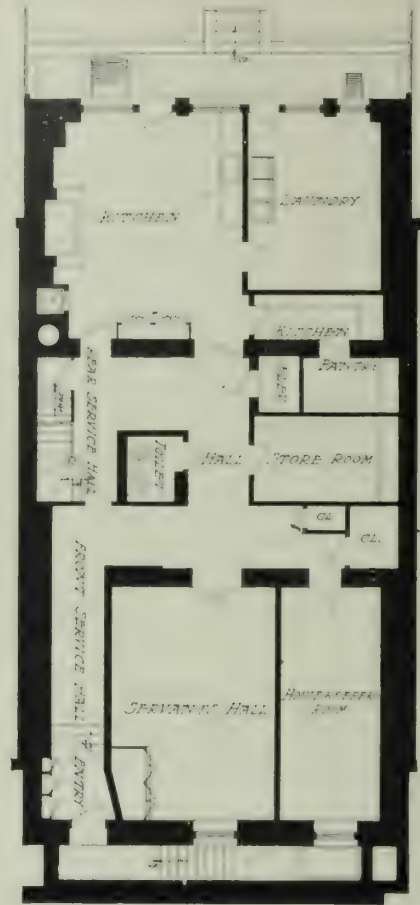
FIRST FLOOR.



SECOND FLOOR PLAN



FIRST FLOOR PLAN

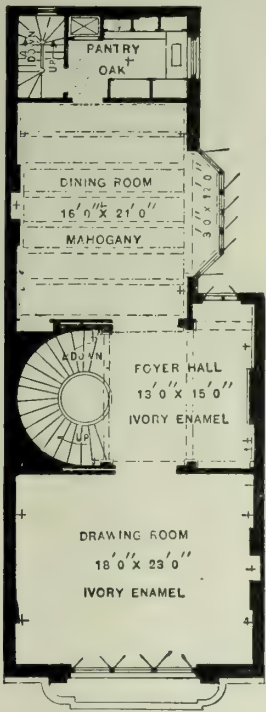


BASEMENT PLAN

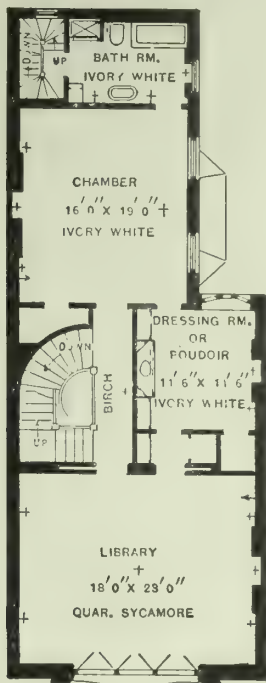
SCALE 0 5 10 15 20 25 FEET



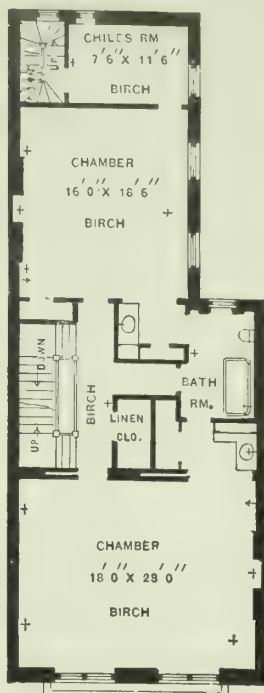
NEW YORK CITY HOUSE
DESIGNED BY A. STALL, ARCHT.
DRAWN BY J. H. BROWN, ARCHT.



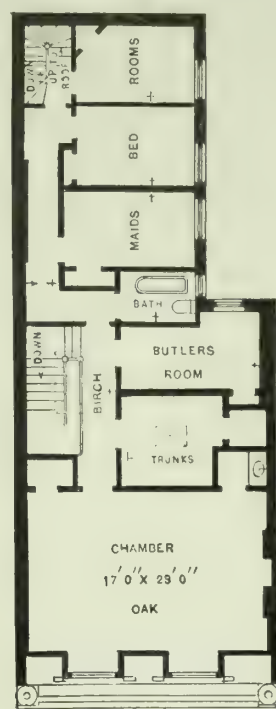
FIRST FLOOR.



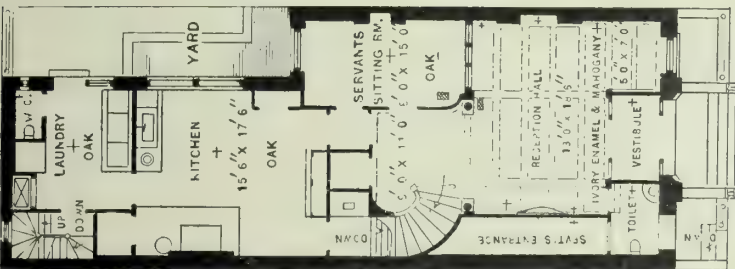
SECOND FLOOR.



THIRD FLOOR.



FOURTH FLOOR.



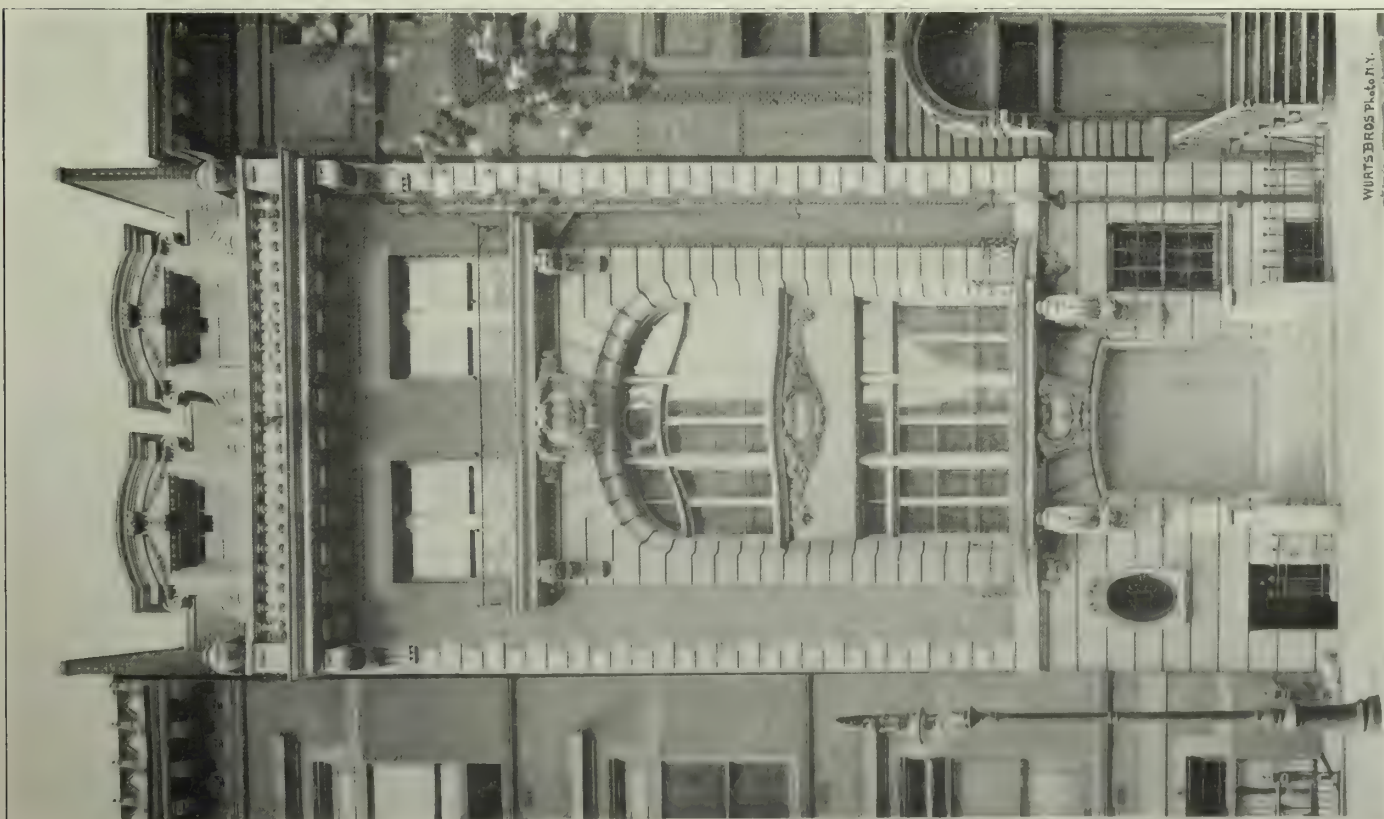
GROUND FLOOR.

W. 1st STREET.

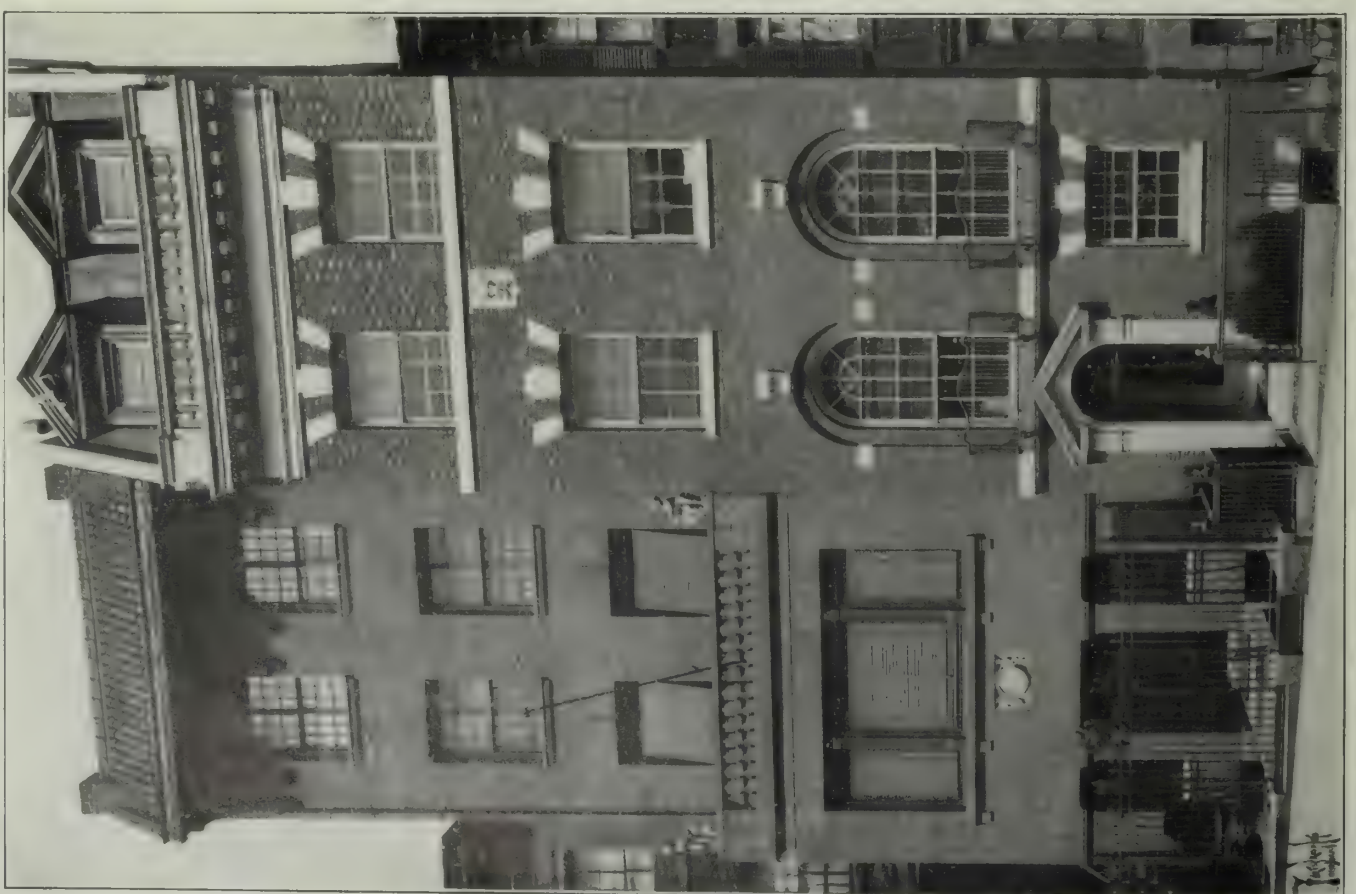
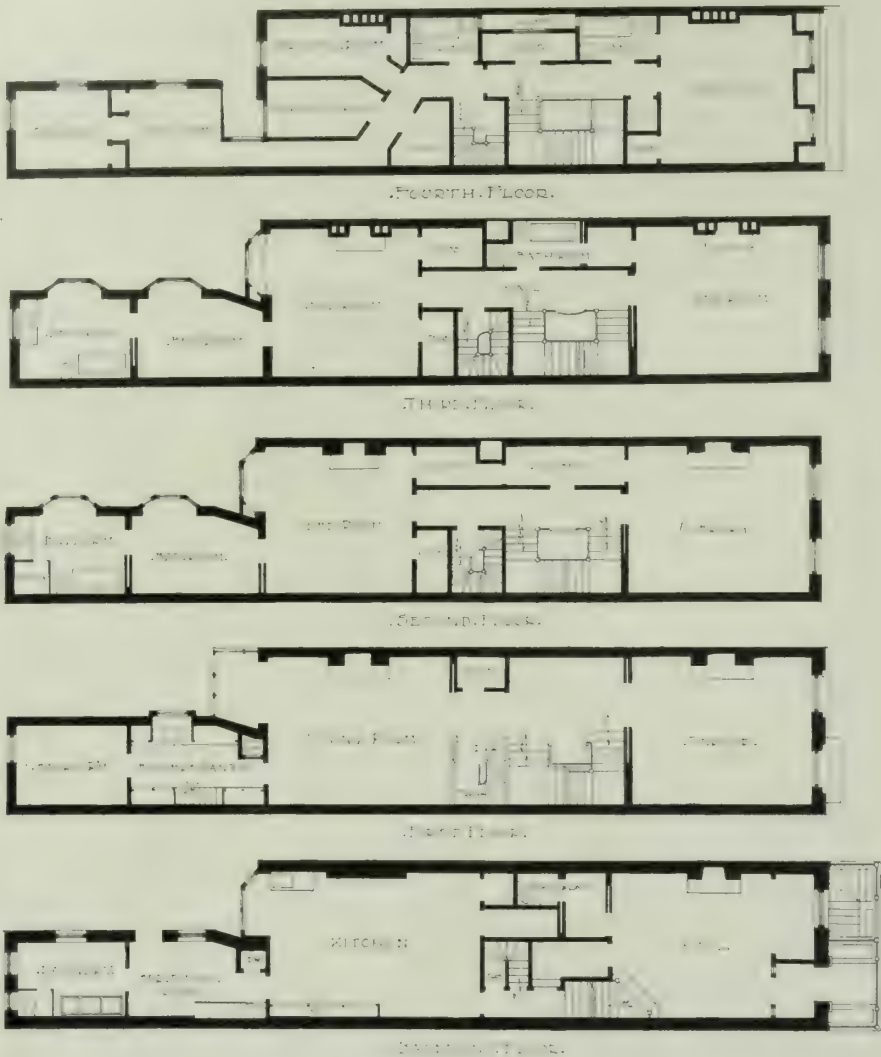
ARCHITECT.

NEW YORK CITY

HOUSES.

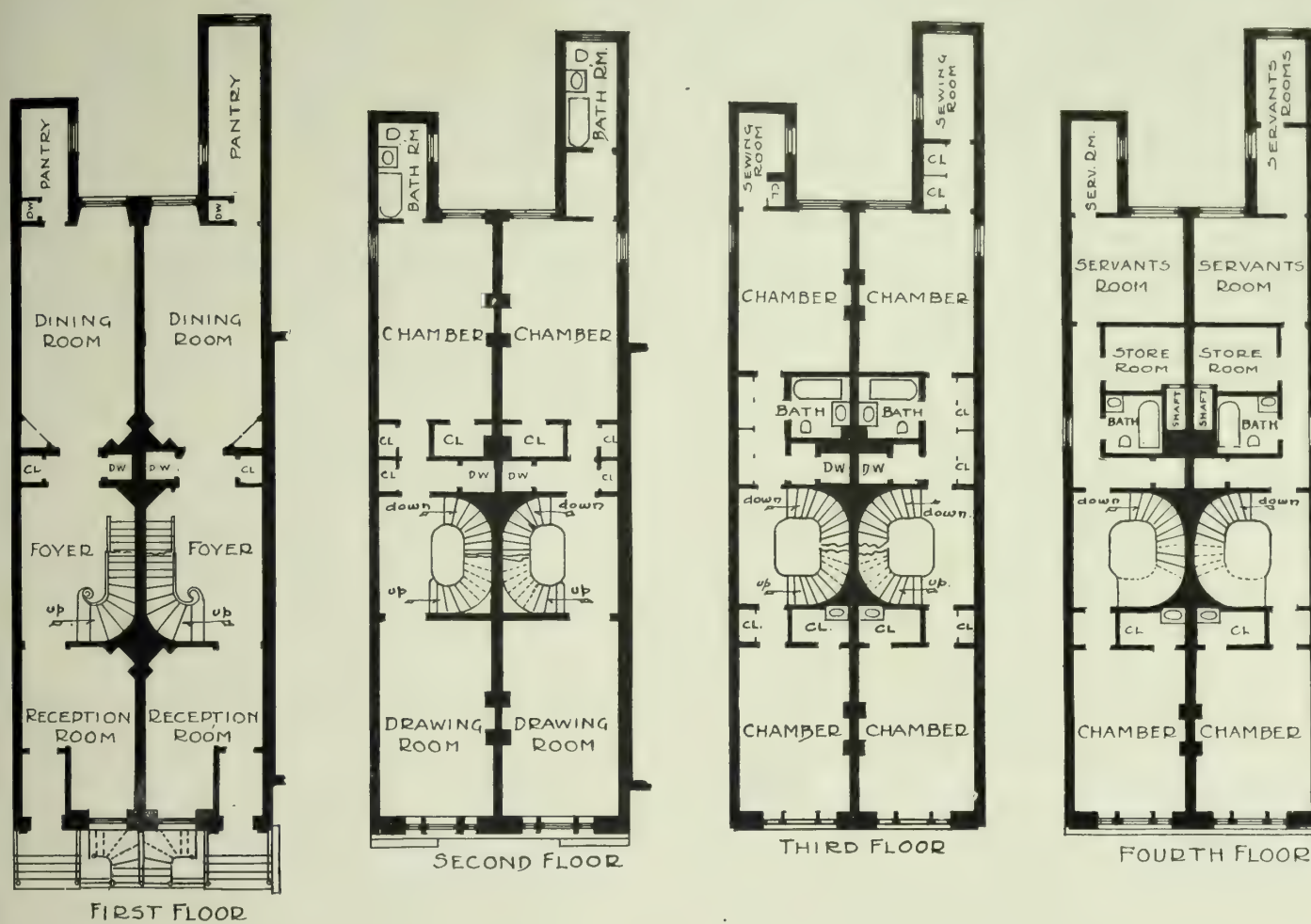


WURTSBROS. PHOTOGRAPHY.

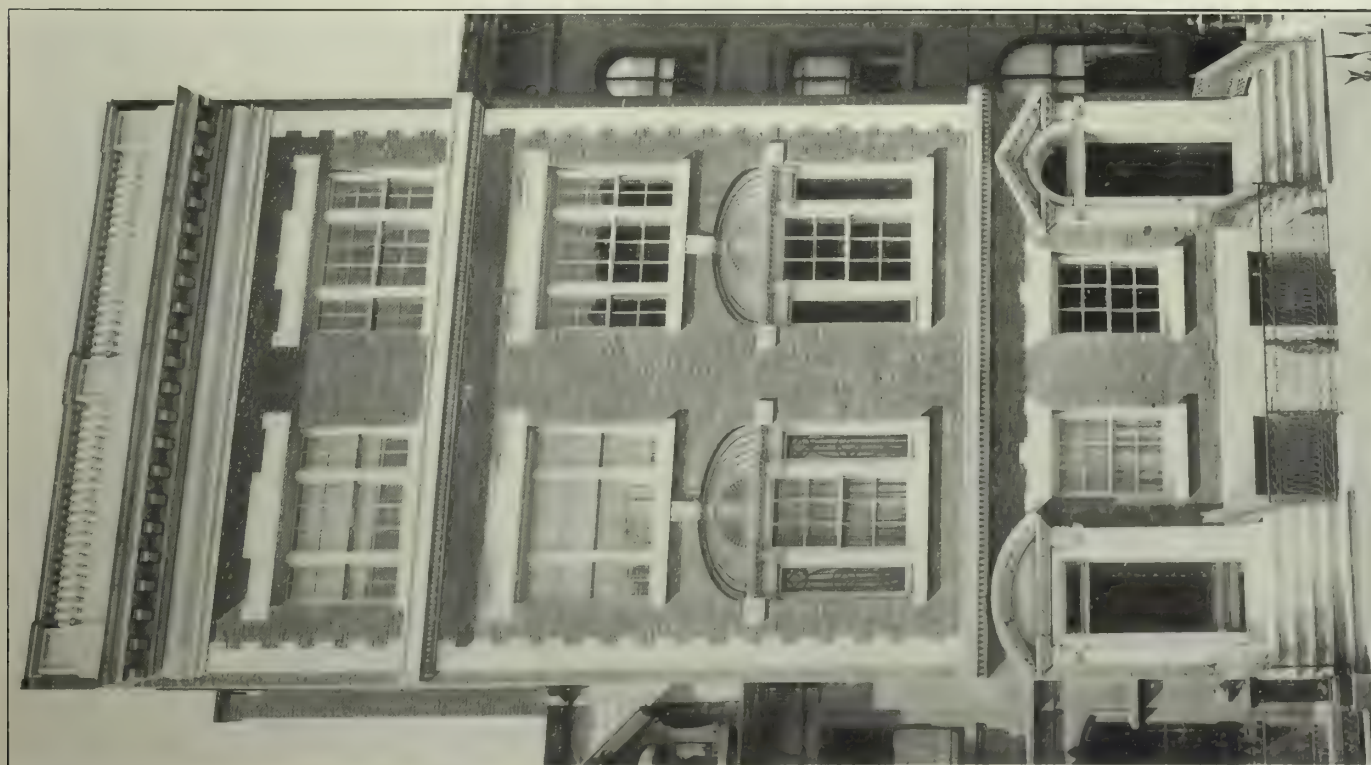


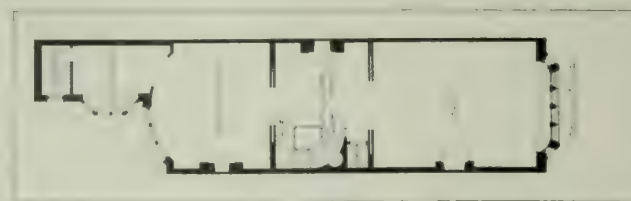
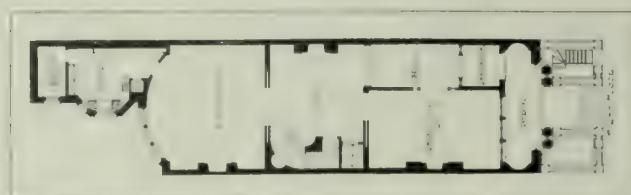
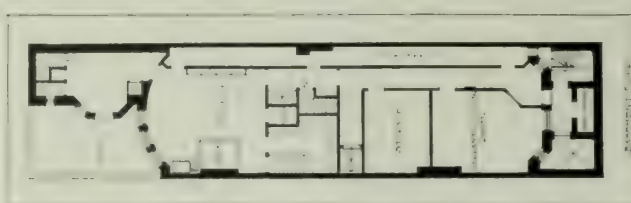
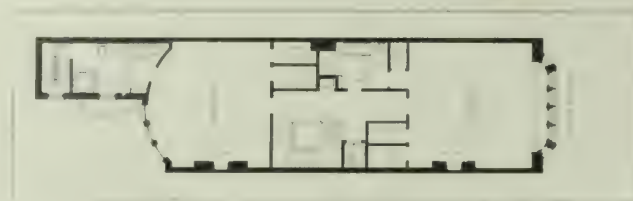
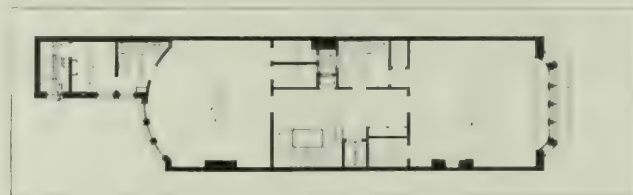
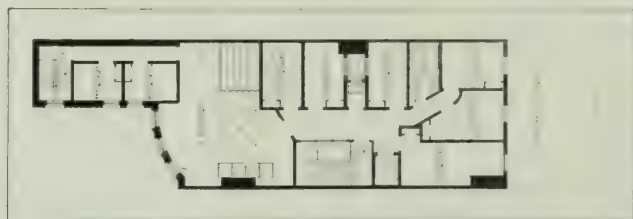
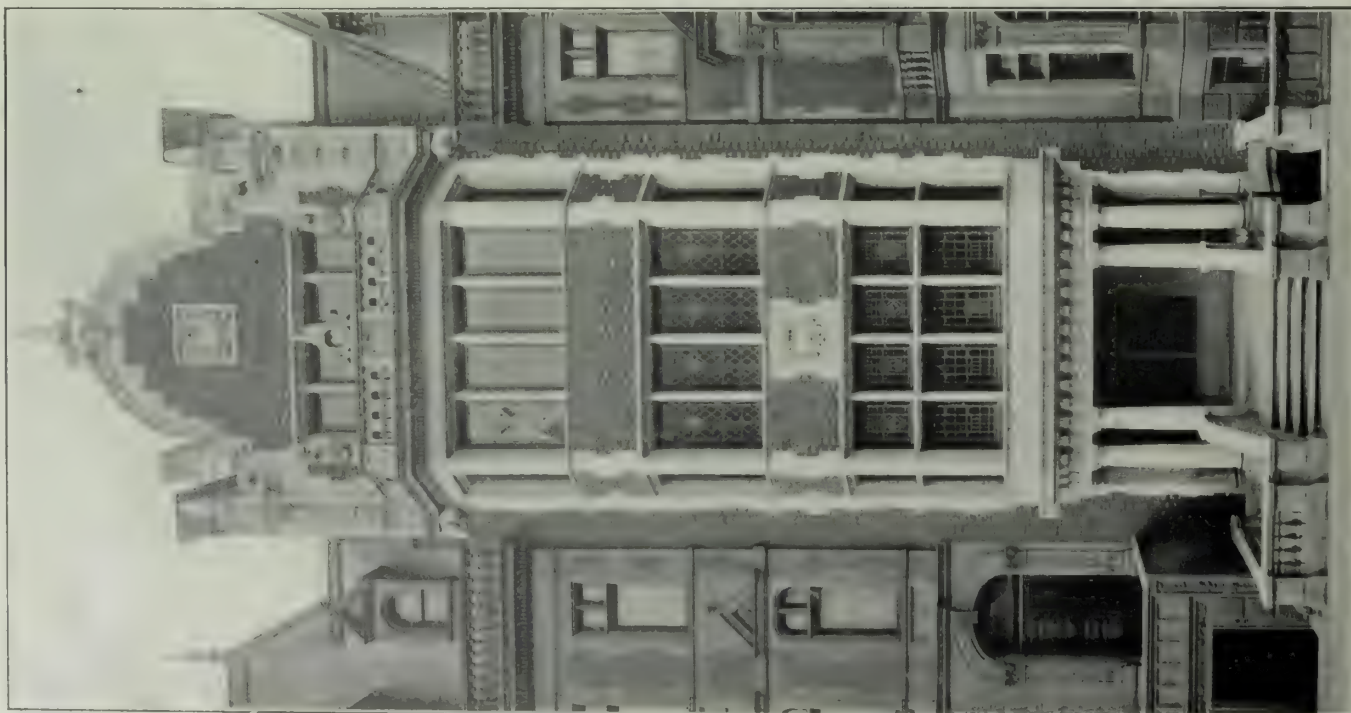
118 EAST 40TH STREET.
 GEORGE F. WOOL, ARCHT. IN CH.
 201, 203 & 205 EAST 40TH STREET.

NEW YORK CITY HOUSES.



111 AND 114 EAST 38TH STREET. RALPH S. TOWNSEND, ARCHT. N. Y. C.



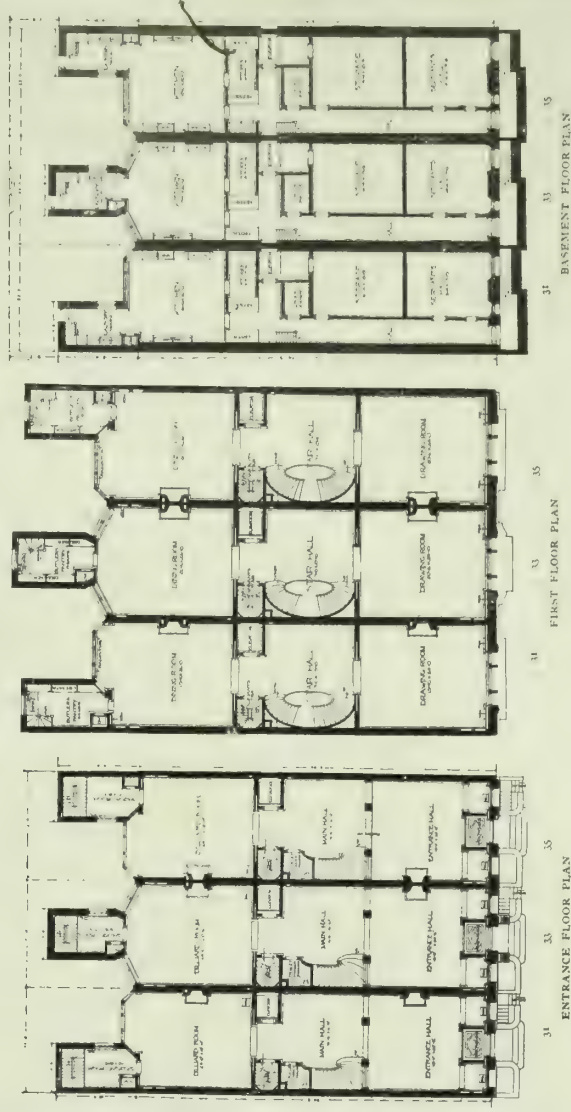
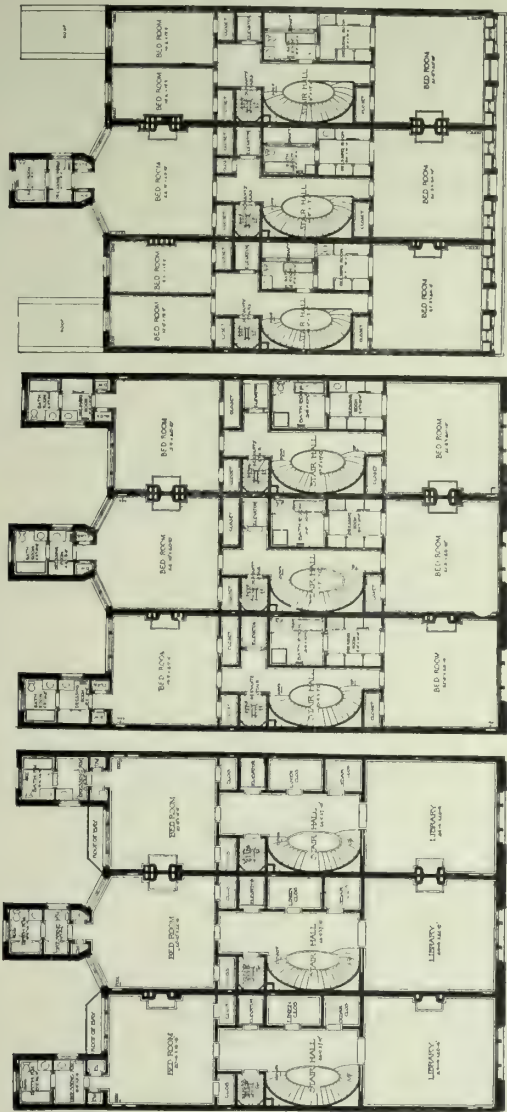
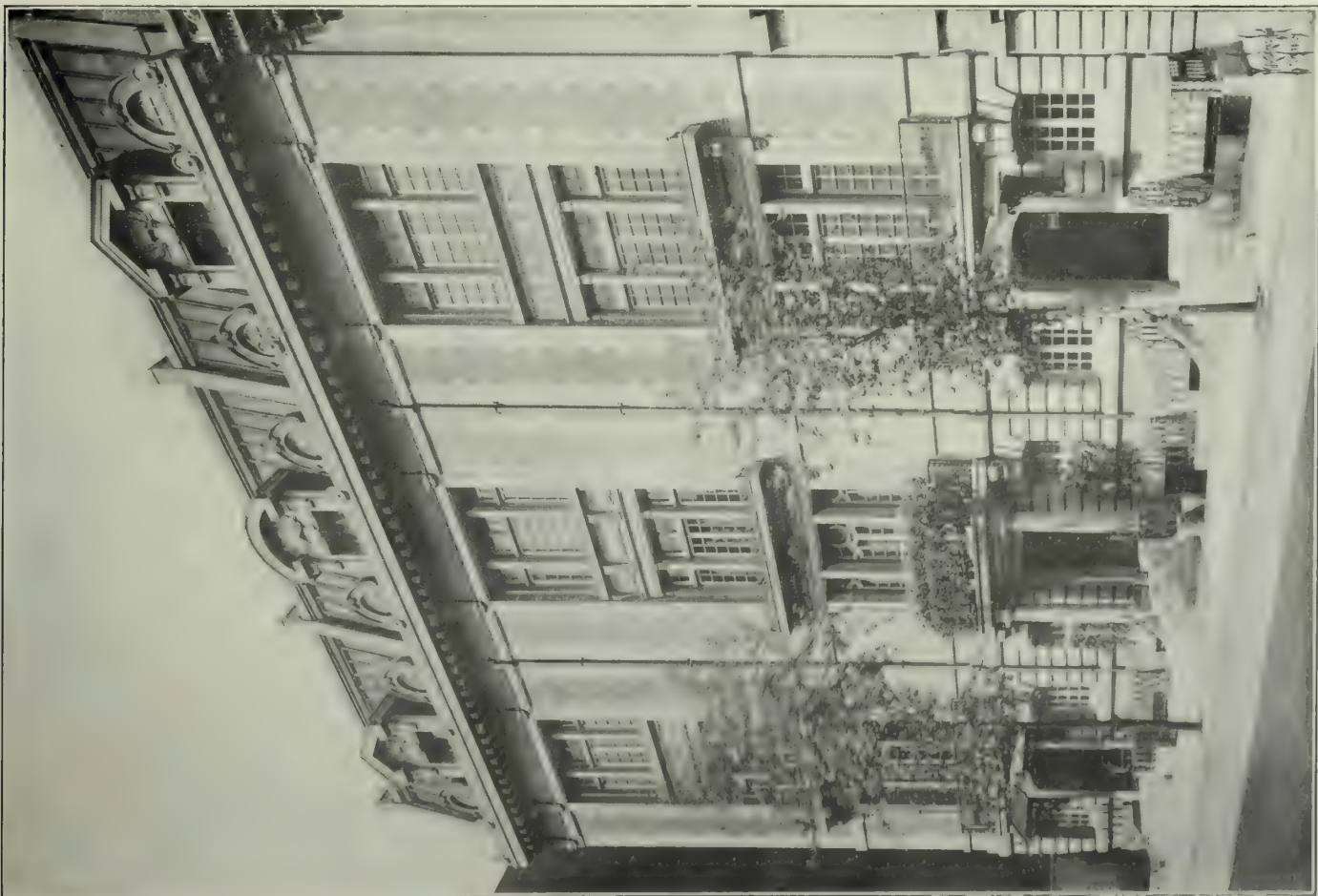


100 WEST 10TH STREET.

KIM, TEE & CO.,

ARCHT.

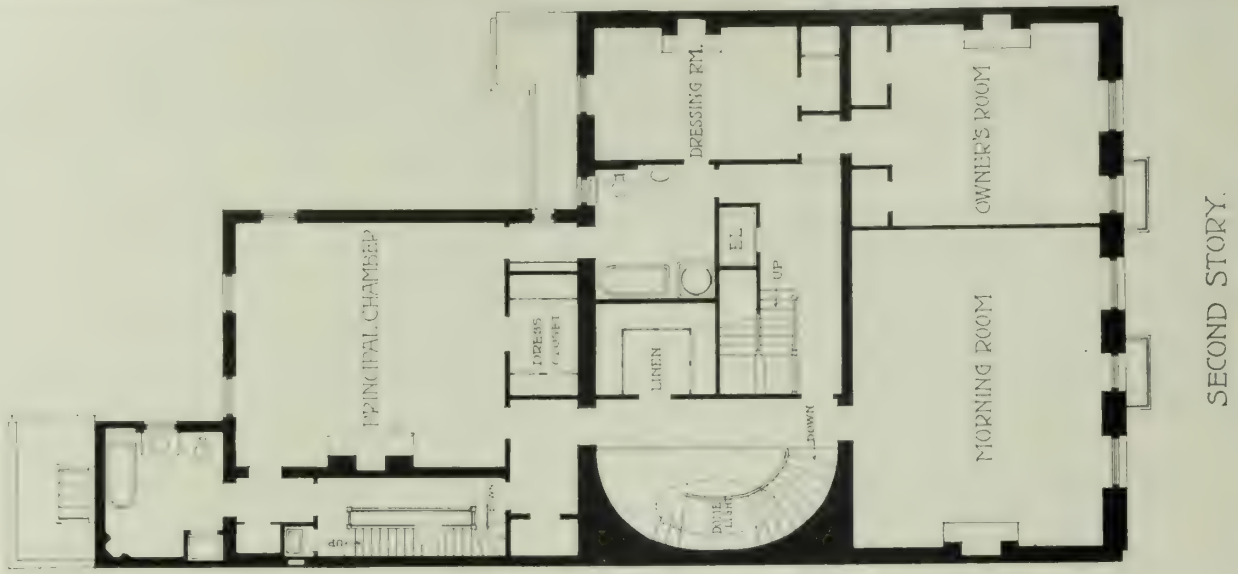
NEW YORK CITY HOUSES.



31, 33 AND 35 EAST STREET.
 TORA & SAWYER, ARCHT'LS.
 NEW YORK CITY HOUSES

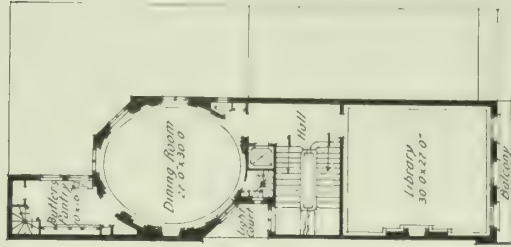
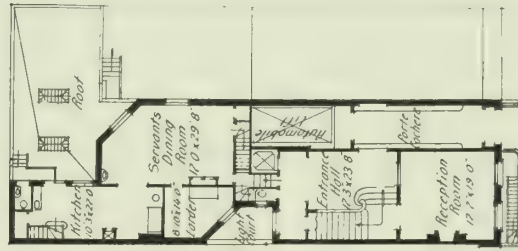
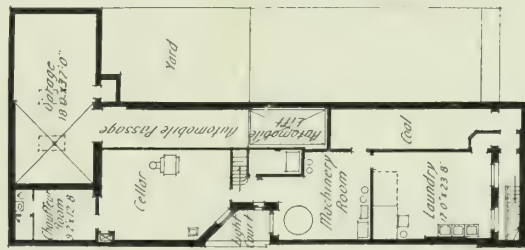
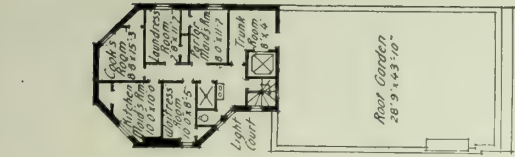
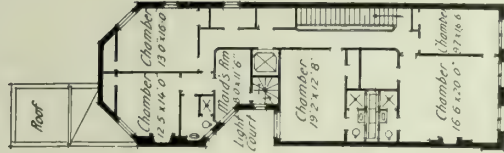
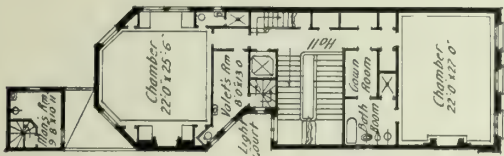


FIRST STORY.

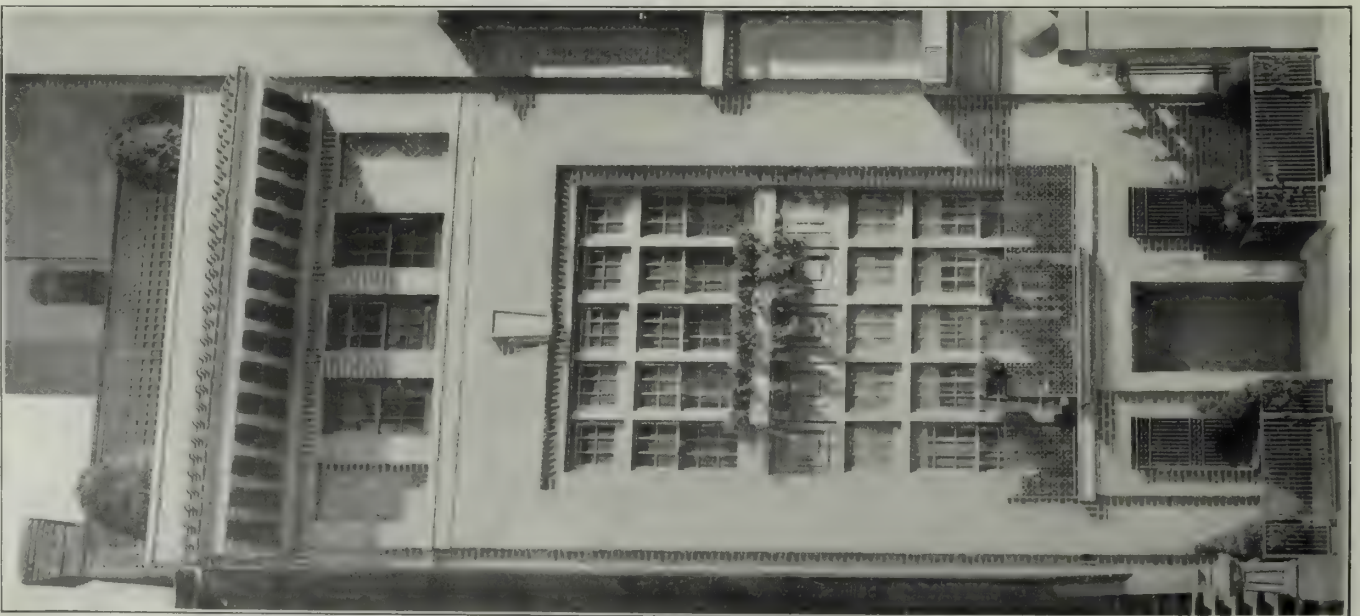


SECOND STORY.

100 EAST 10TH STREET.
WILLIAM STROM, ARCHT.
NEW YORK CITY HOUSES.



PLAN OF HOUSE, 100 E. 10TH ST., NEW YORK CITY.



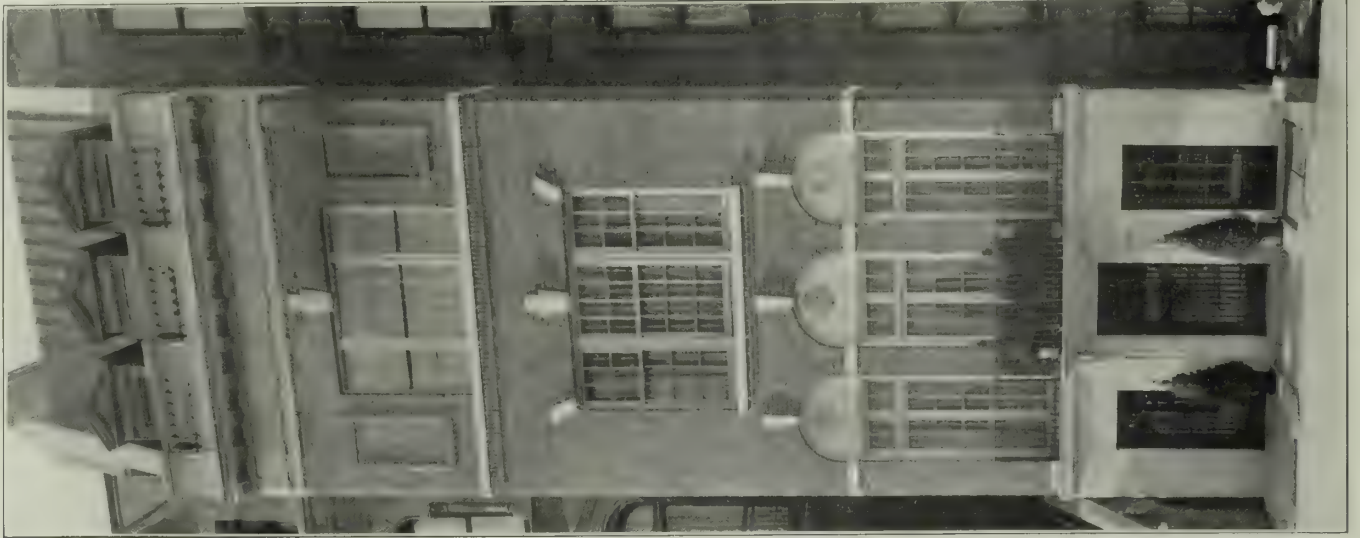
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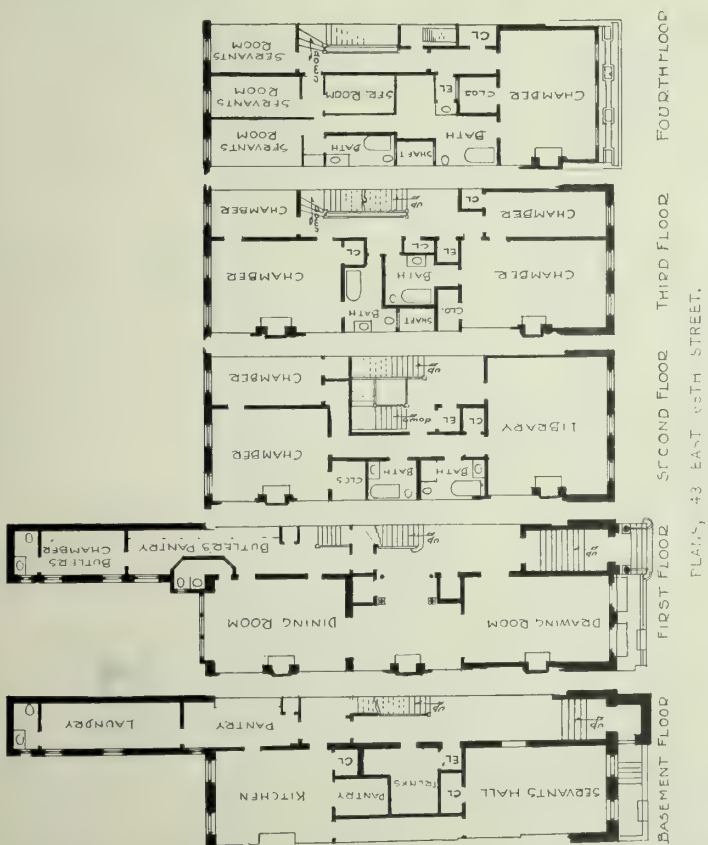
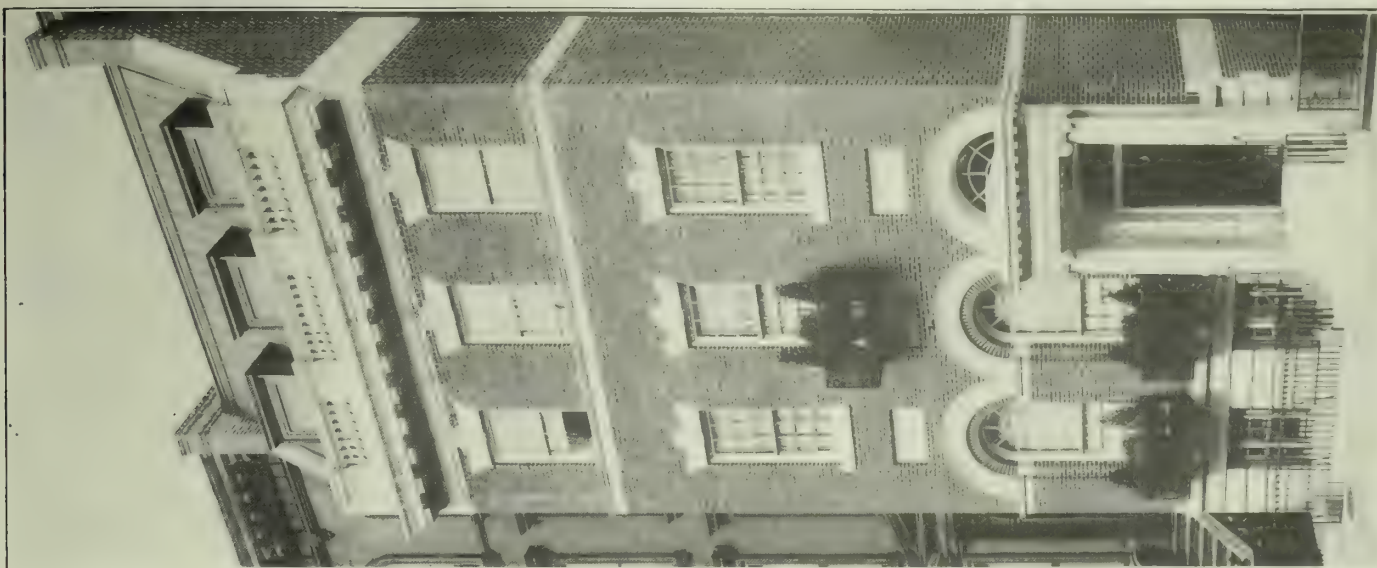
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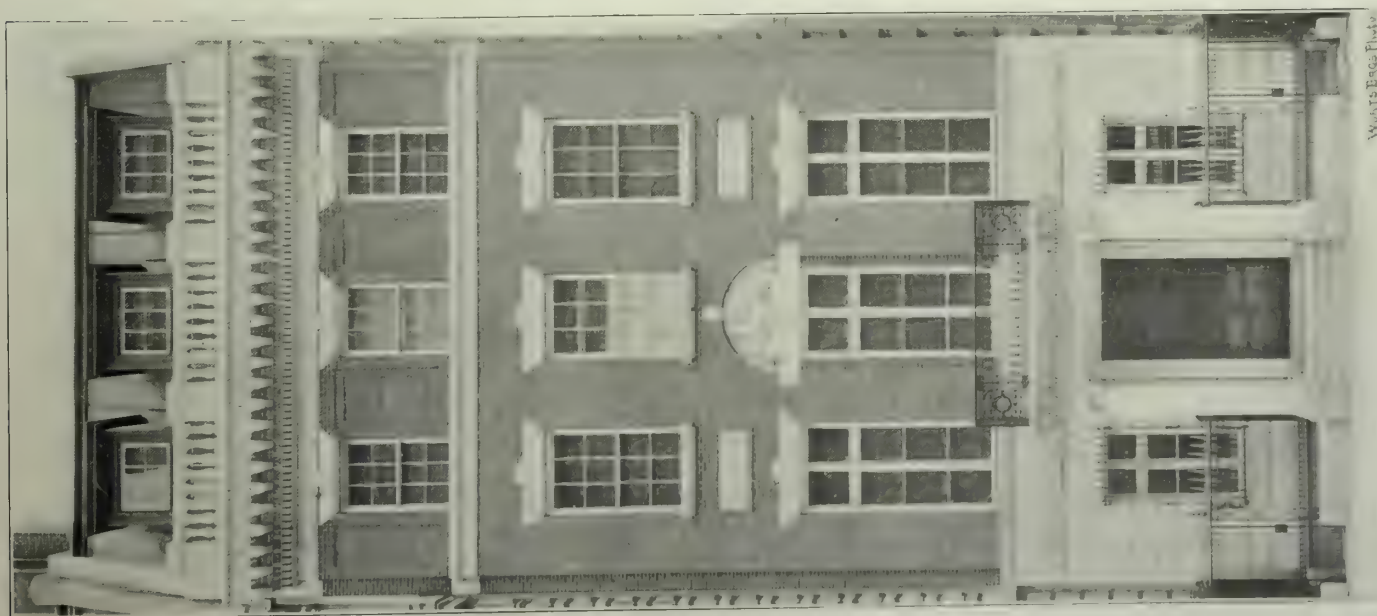
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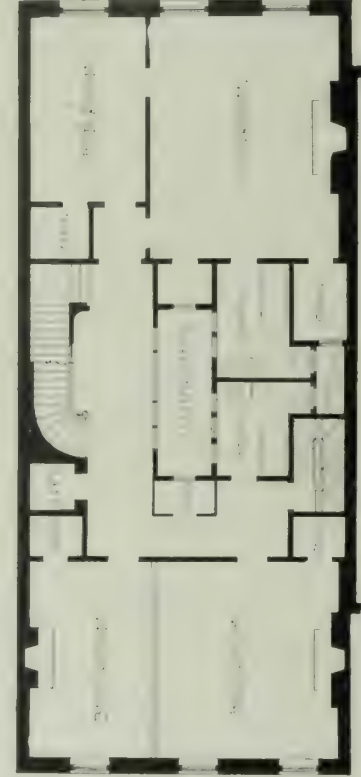
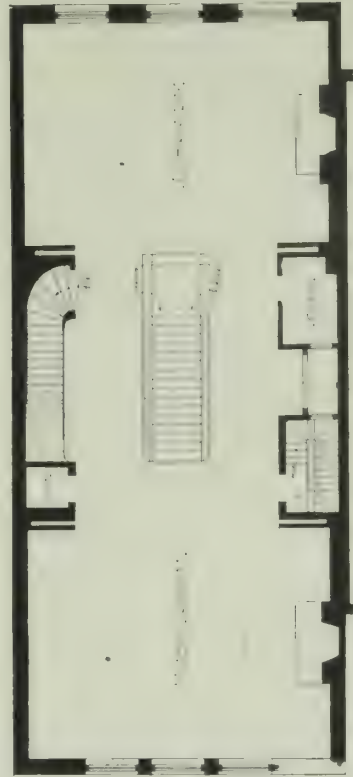
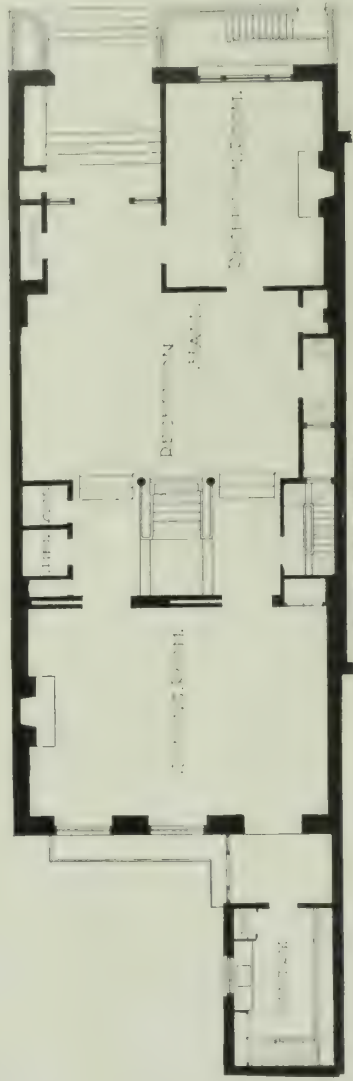
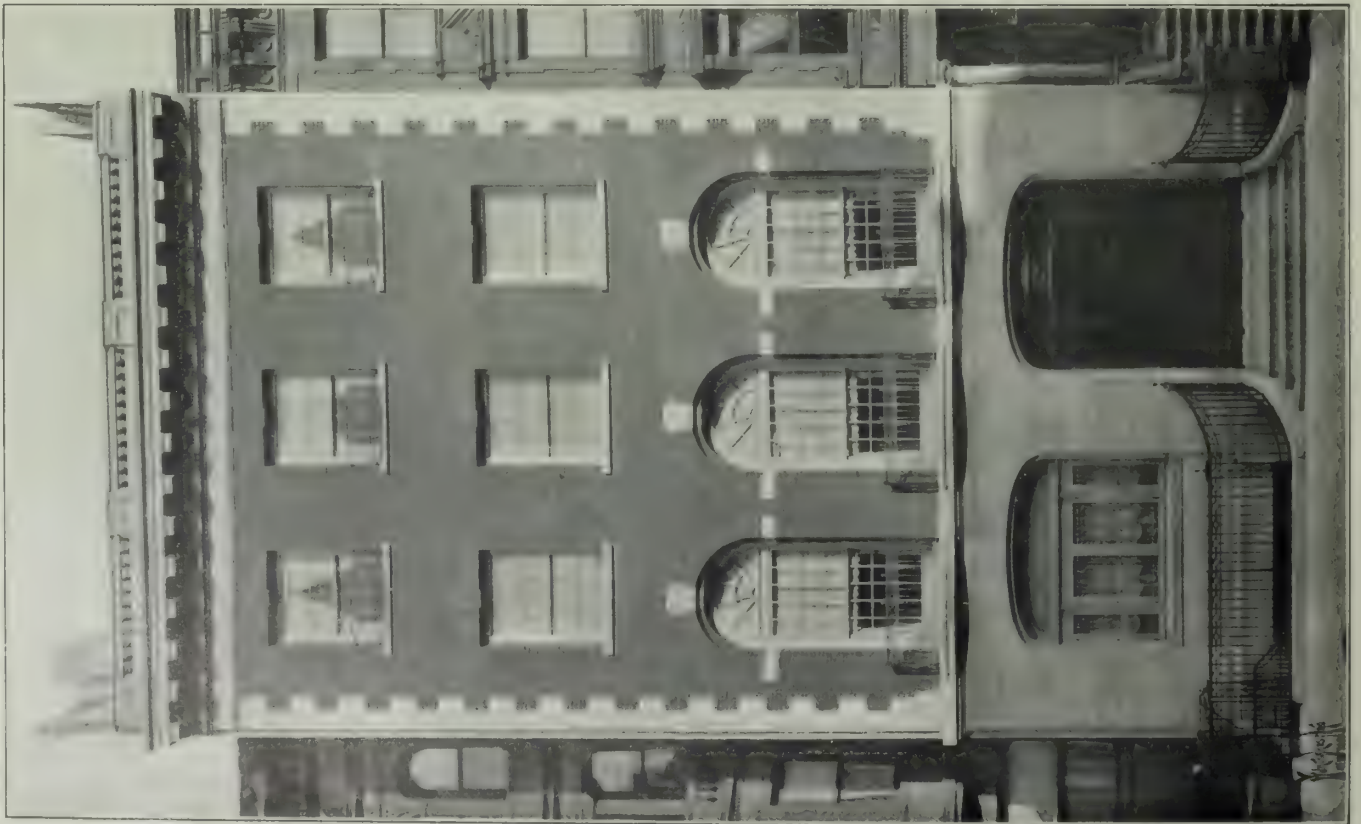


ALBRO & LINDBERG, ARCHITECTS.
NEW YORK CITY HOUSES.

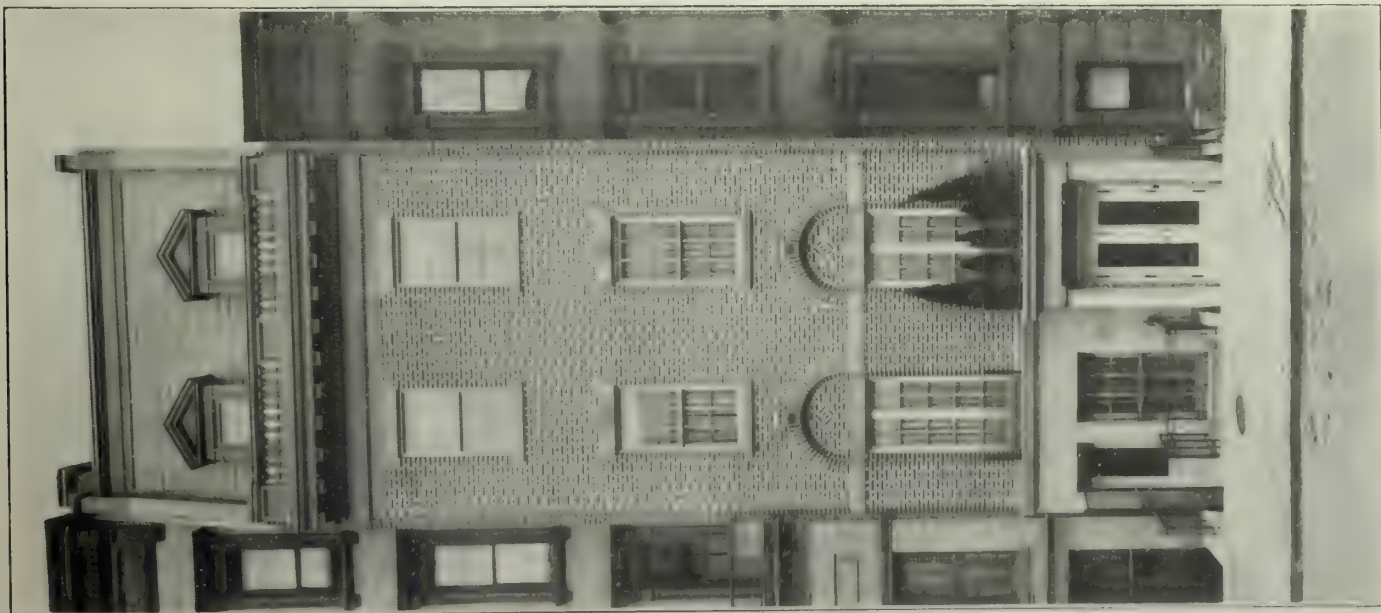


NEW YORK CITY HOUSES.





34 EAST 4TH STREET.
DESIGNED BY A. L. BURNETT, ARCHT.
NEW YORK CITY HOUSES.



120 EAST 70TH STREET.
L. & W. H. BROWN.

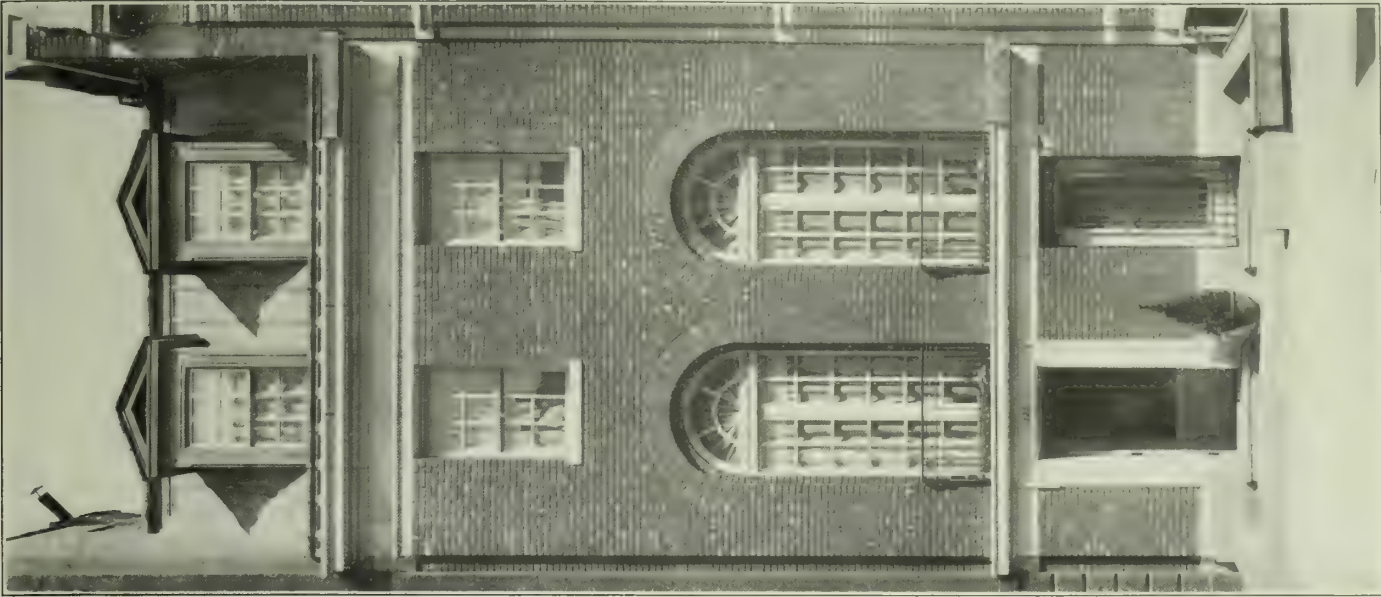


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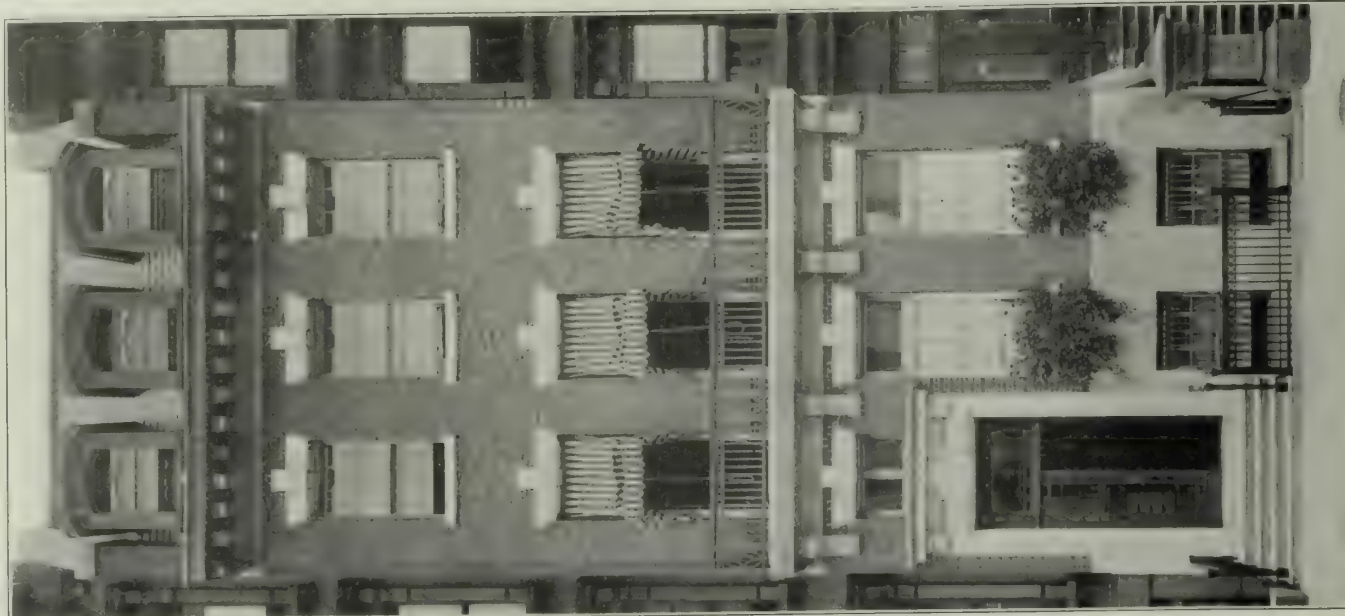


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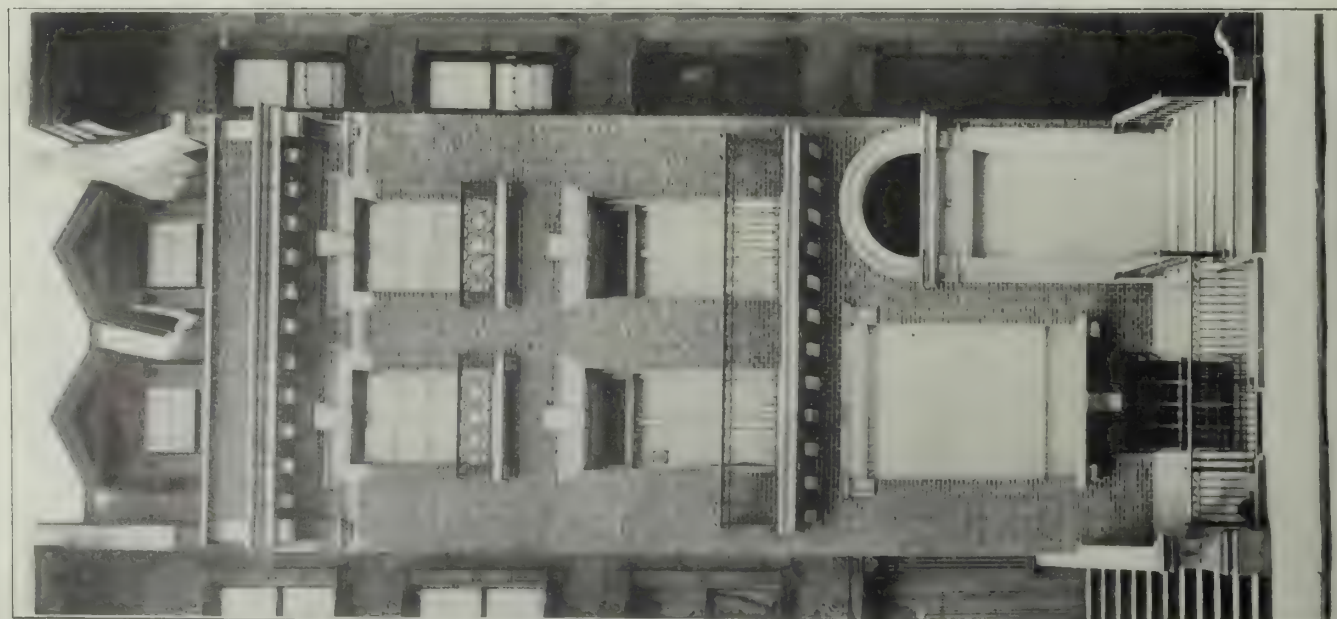
NEW YORK CITY HOUSES.



121 EAST 70TH STREET.
ROBBINS & DENMAN, ARCHT'S.



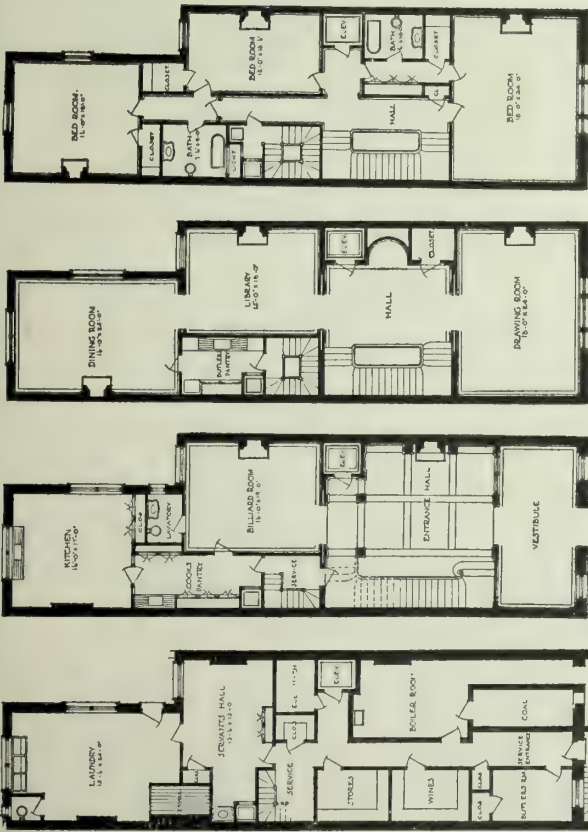
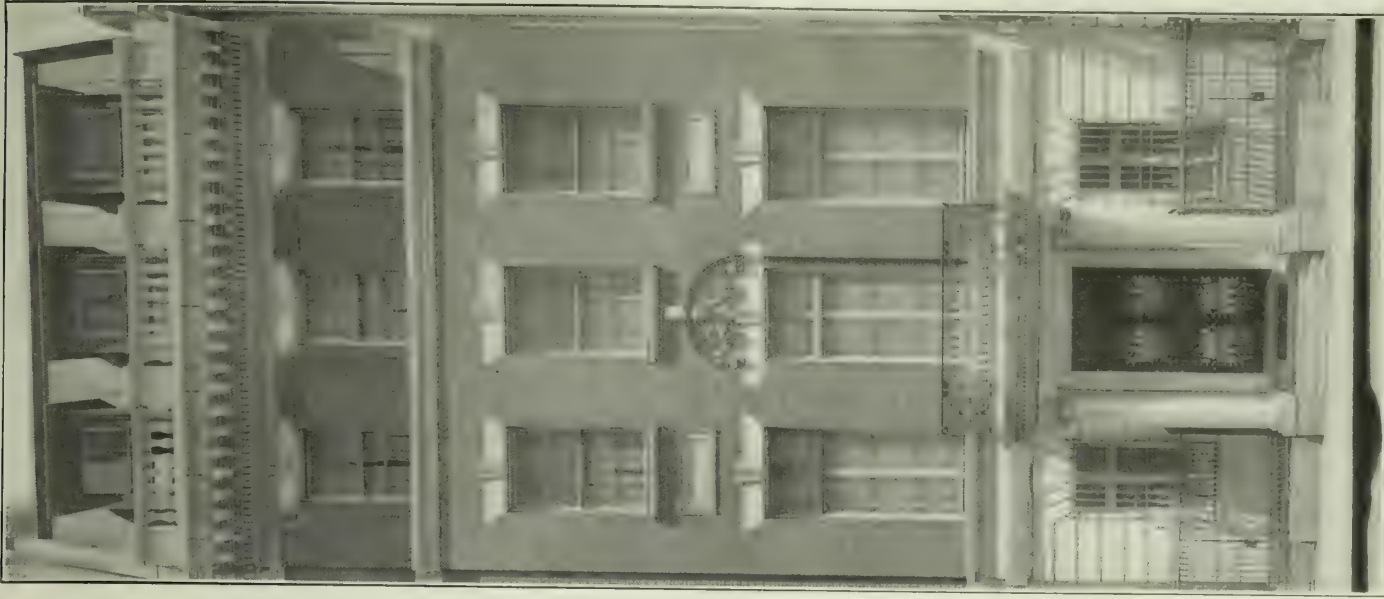
THE SIXTH SILENT.



72 EAST FIFTH STREET.

FORBES, AUST & GILMAN,
ARCHITECTS.

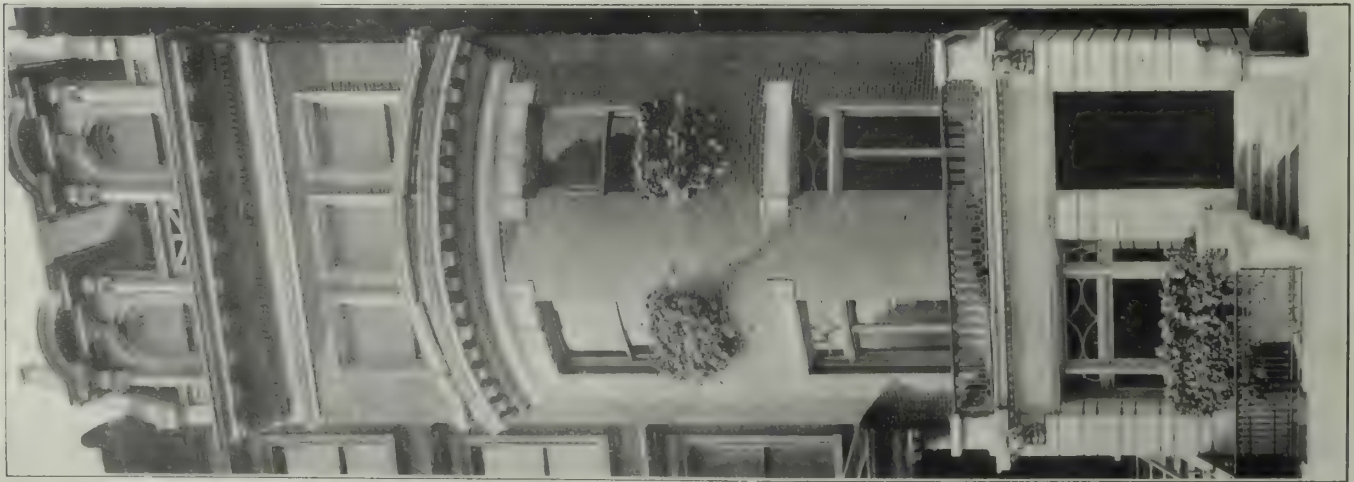
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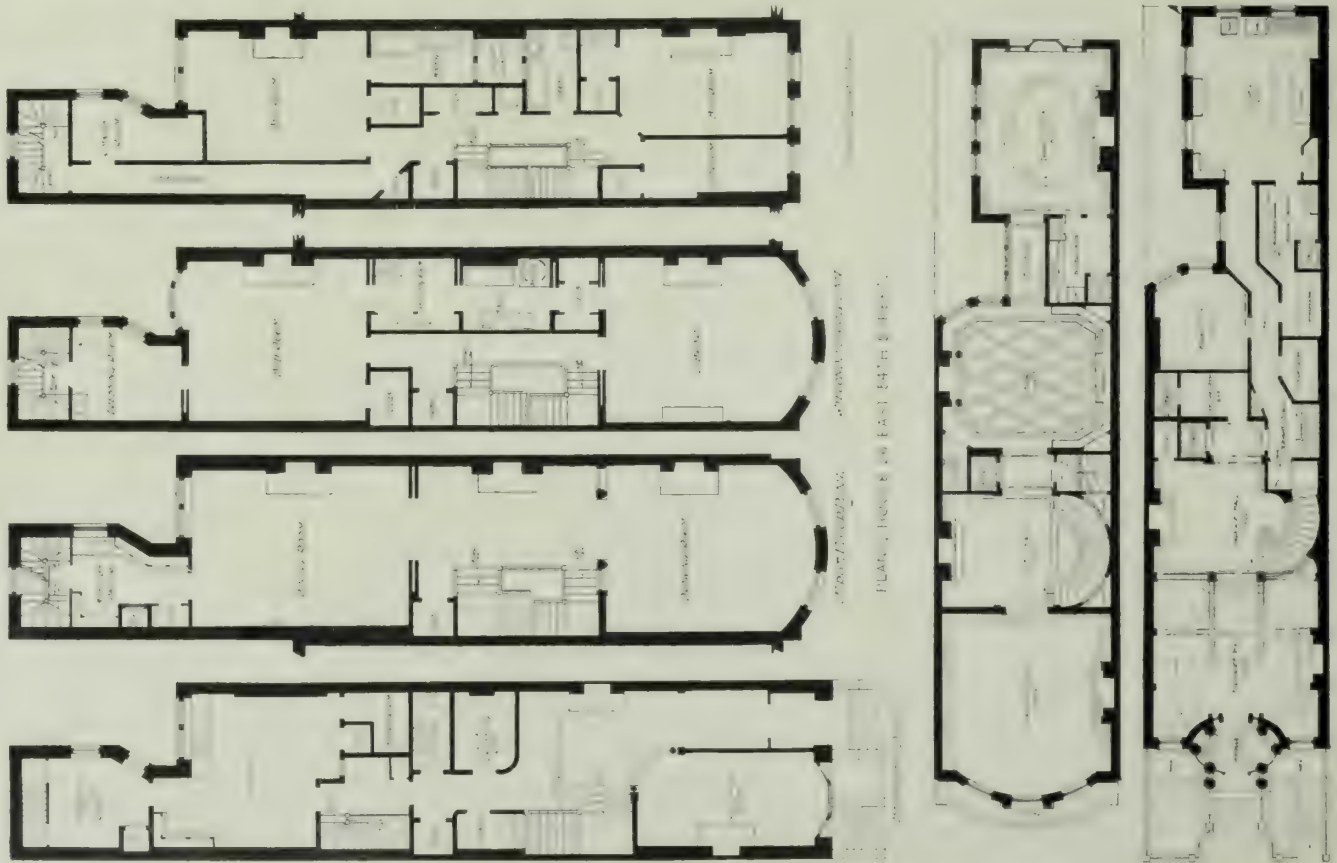
TWO HOUSES IN BLOCK 18 TO 52 WEST 74TH STREET, WITH TYPICAL PLANS.

PERCY GREEN, ARCHT'CT.

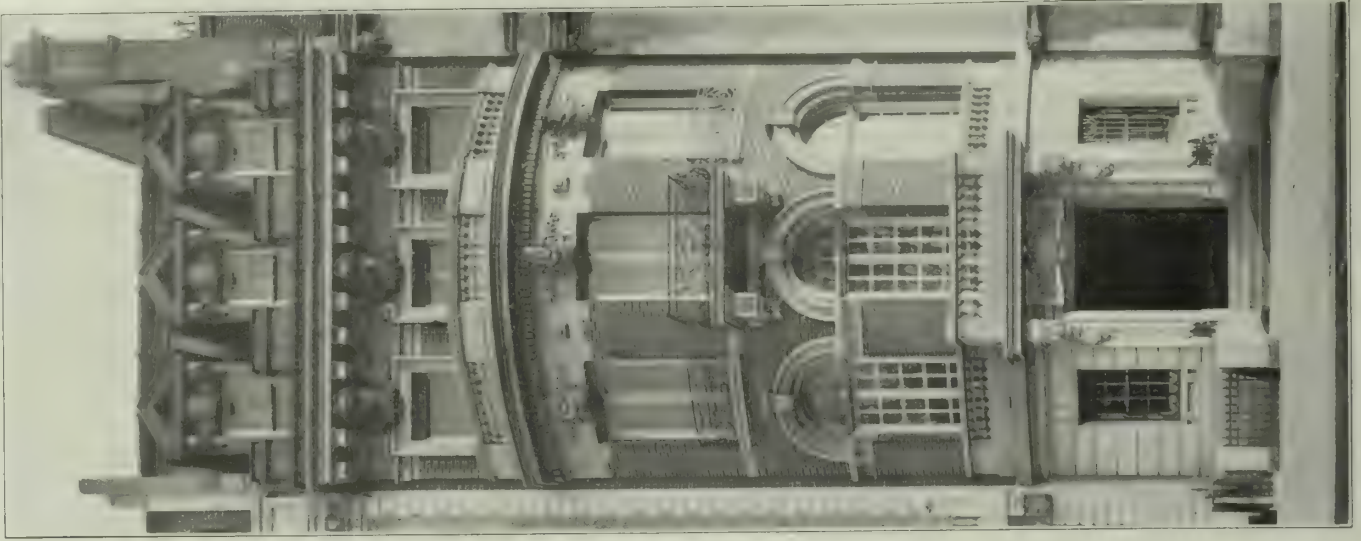
NEW YORK CITY HOUSES.



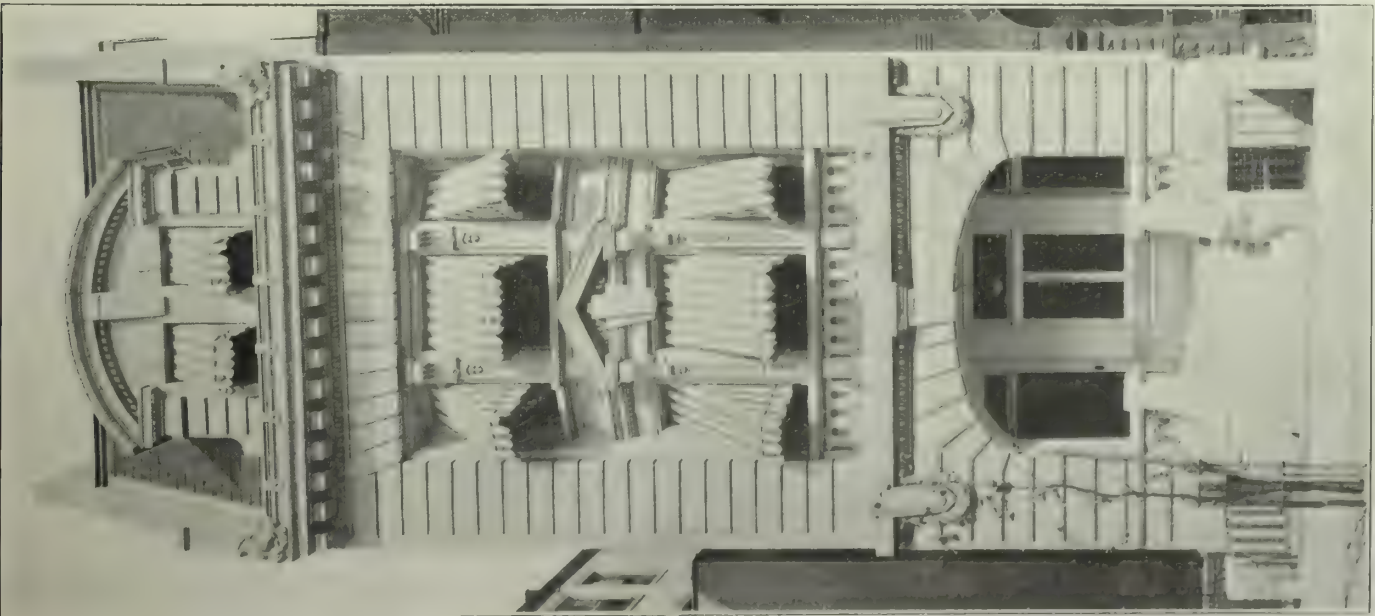
20 EAST 54TH STREET.
C. S. W. ROBERT, ARCHITECT.



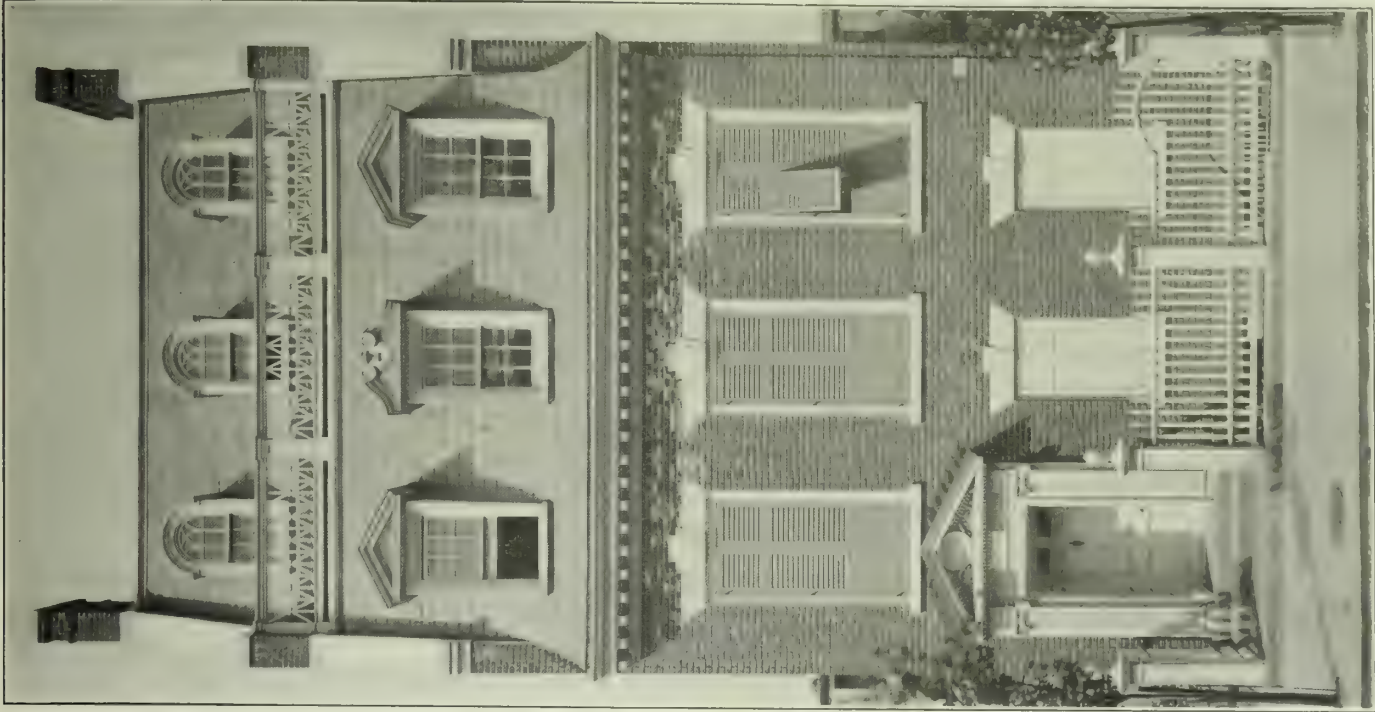
FIRST AND SECOND FLOOR PLANS, HOUSE, 992 FIFTH AVENUE.
NEW YORK CITY HOUSES.



992 FIFTH AVENUE.
GEORGE A. FREEMAN, ARCHITECT.

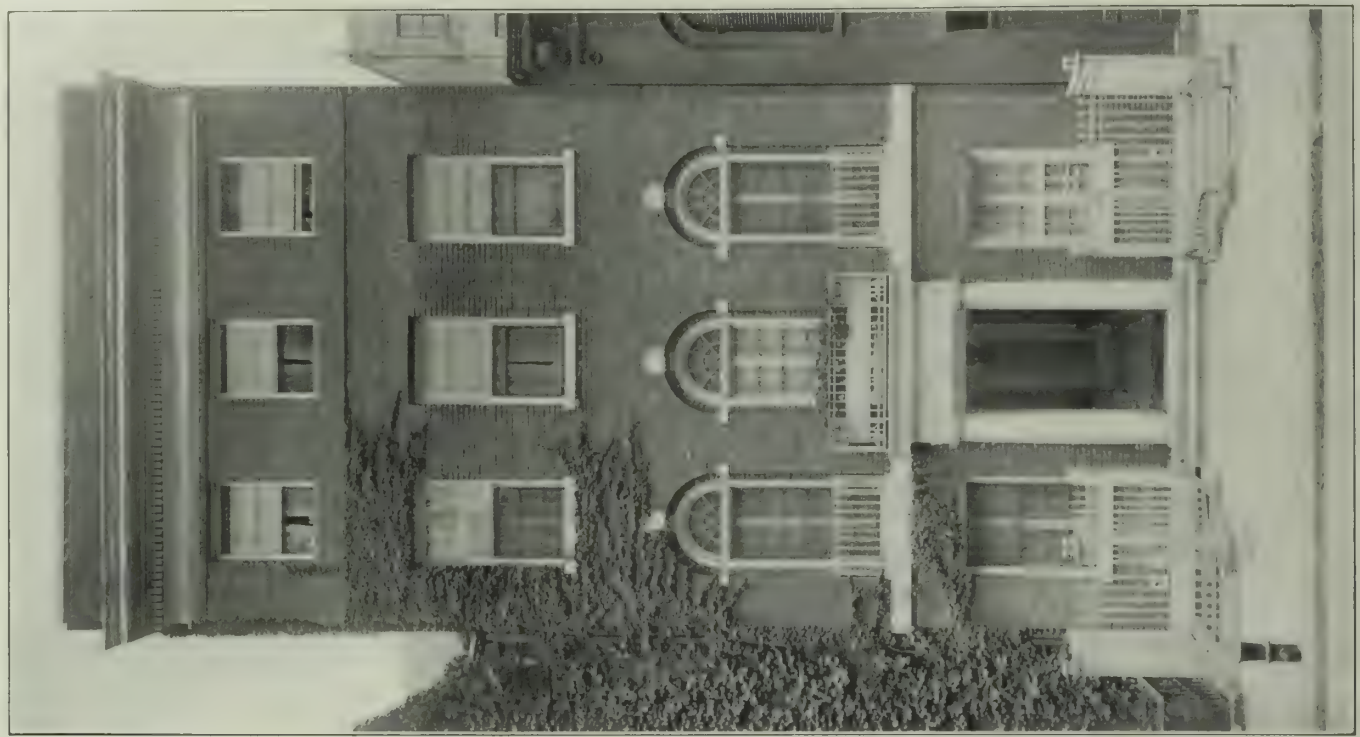


100 WEST 100 STREET.
HUNT & TAYLOR ARCHT'S.

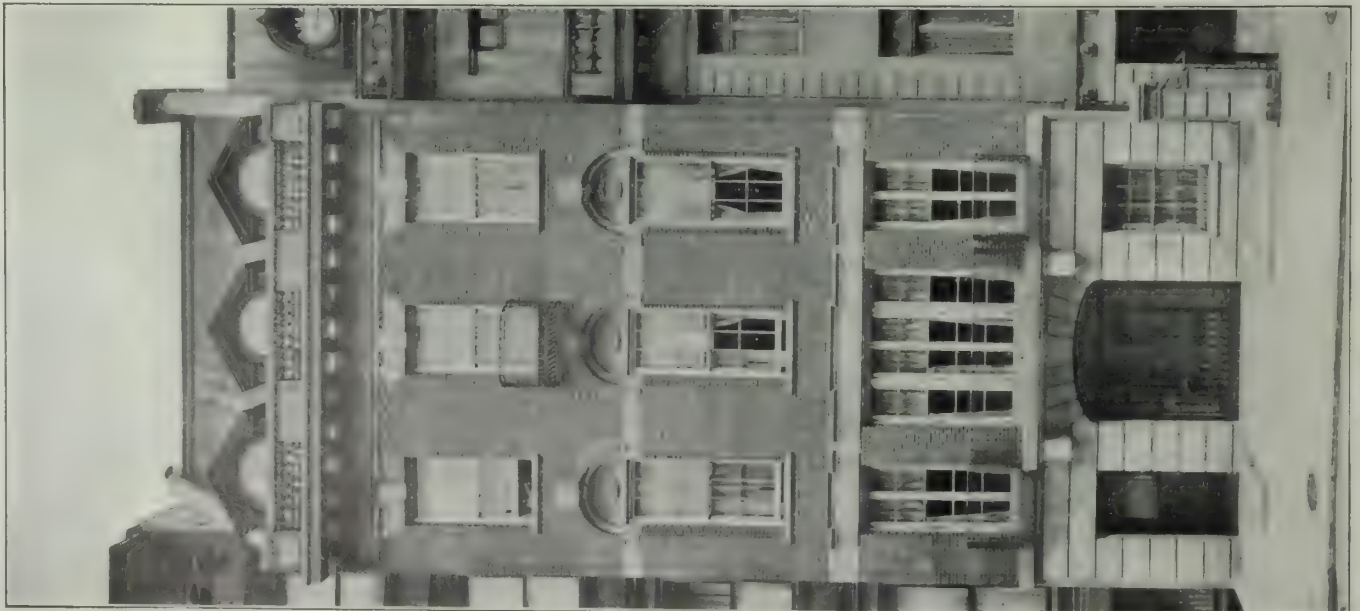
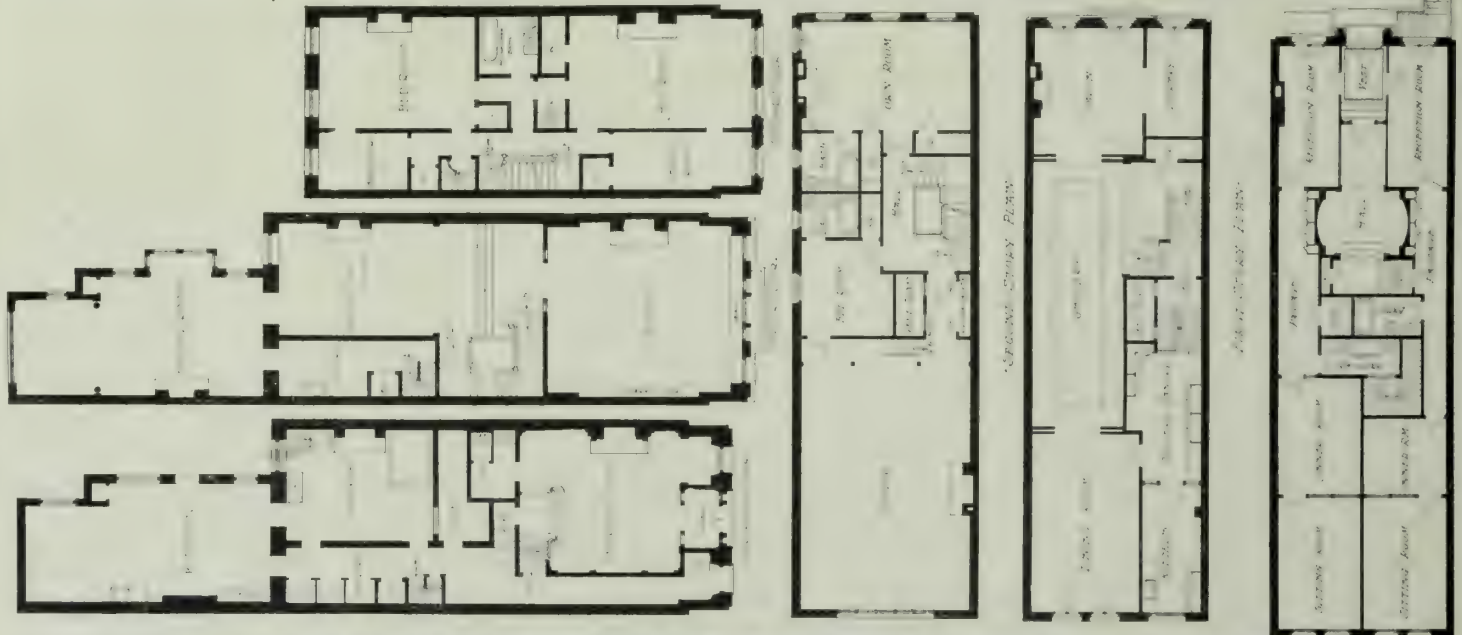


100 EAST 100 STREET.
ROBERTSON & CO. ARCHT'S.

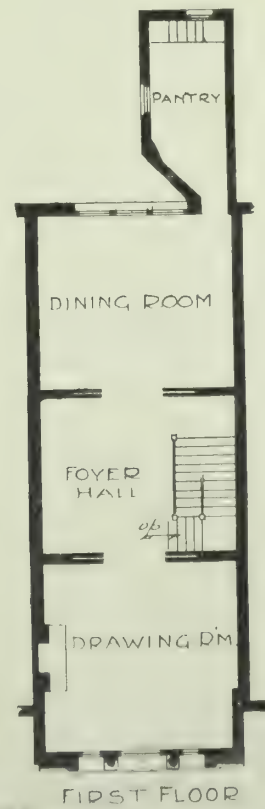
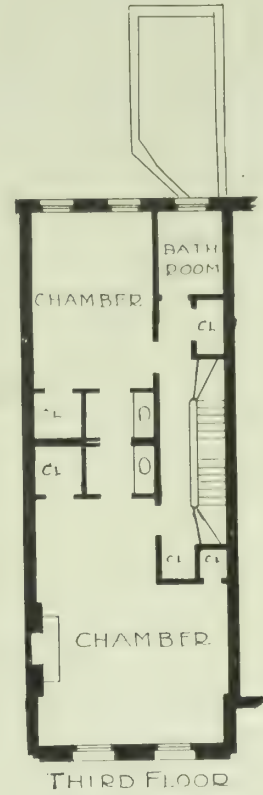
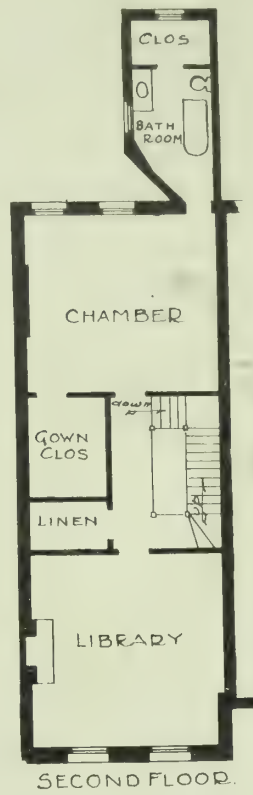
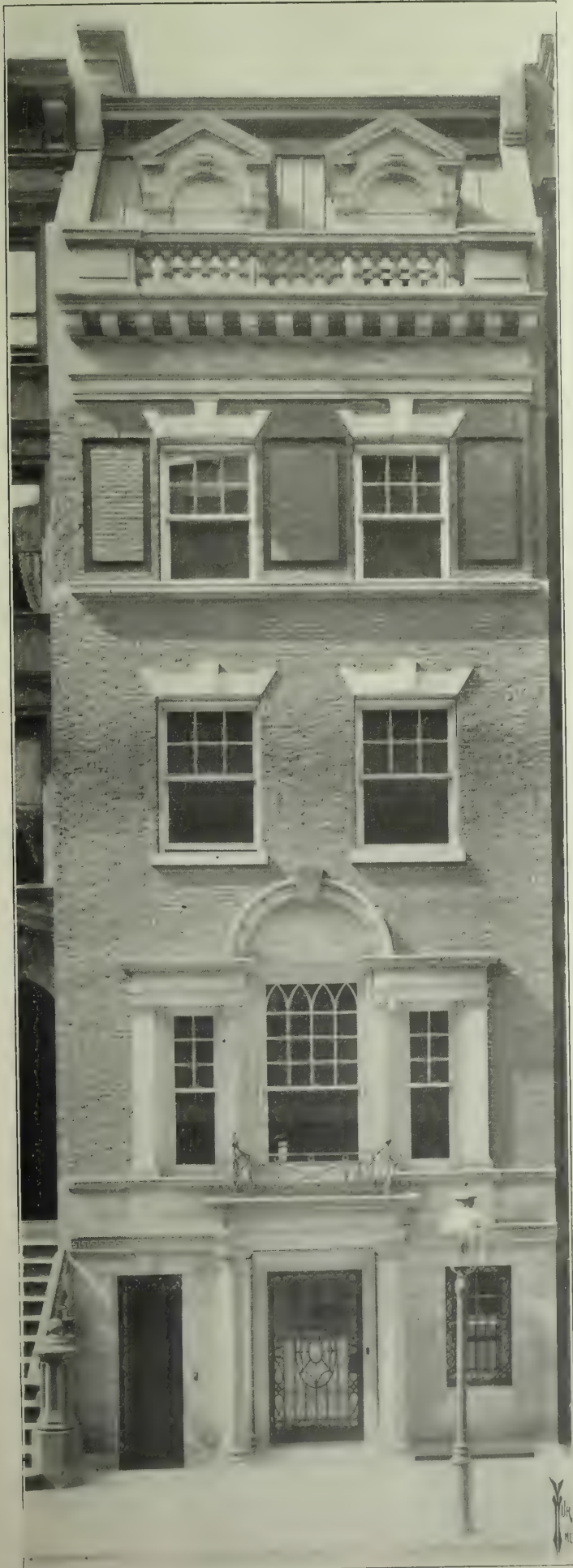




27 EAST 35TH STREET.
CHARLES E. BRUE, ARCHITECT.
PLANS AT BOTTOM OF PAGE.



12 WEST 81ST STREET.
A. N. ALLEN, ARCHITECT.
PLANS AT TOP OF PAGE.



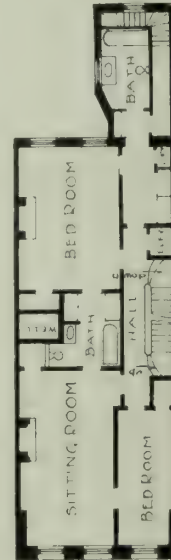
66 EAST 81ST STREET.
 PICKERING & WALKER, ARCHITECTS.
 NEW YORK CITY HOUSING



FIRST FLOOR PLAN.



SECOND FLOOR PLAN.

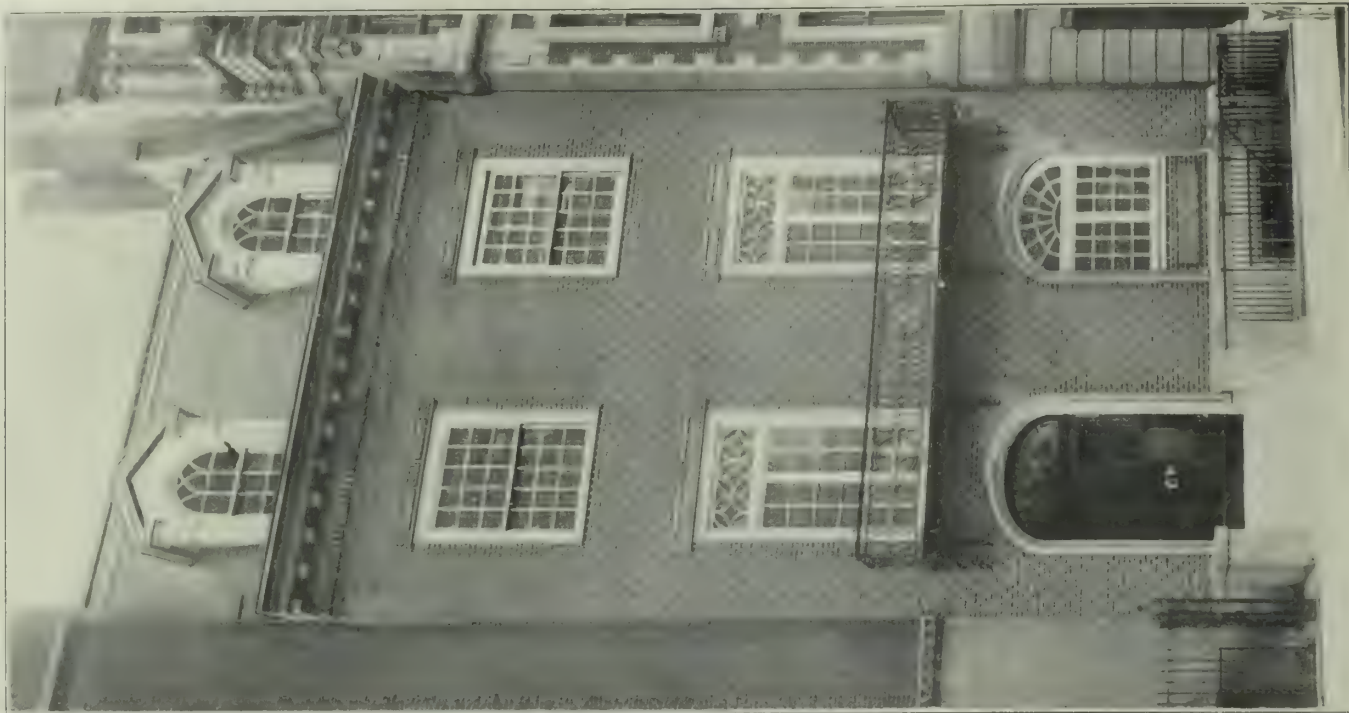


THIRD FLOOR PLAN.

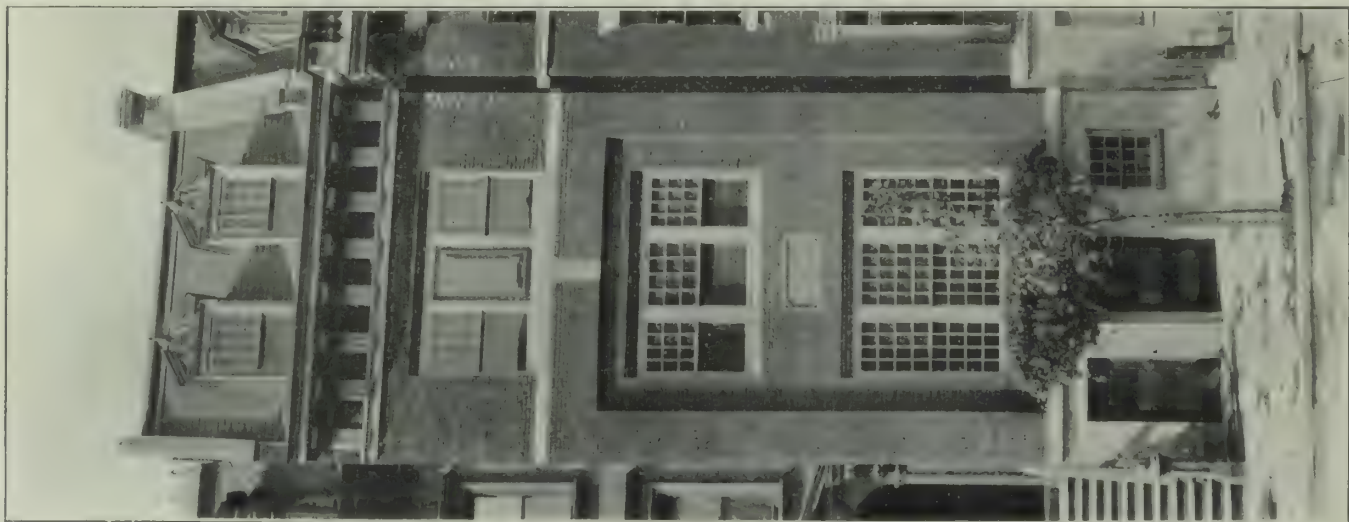
17 E. 43rd STREET.
 PALMER & HORNBOSTEL, ARCHT'ES.
 NEW YORK CITY HOUSES



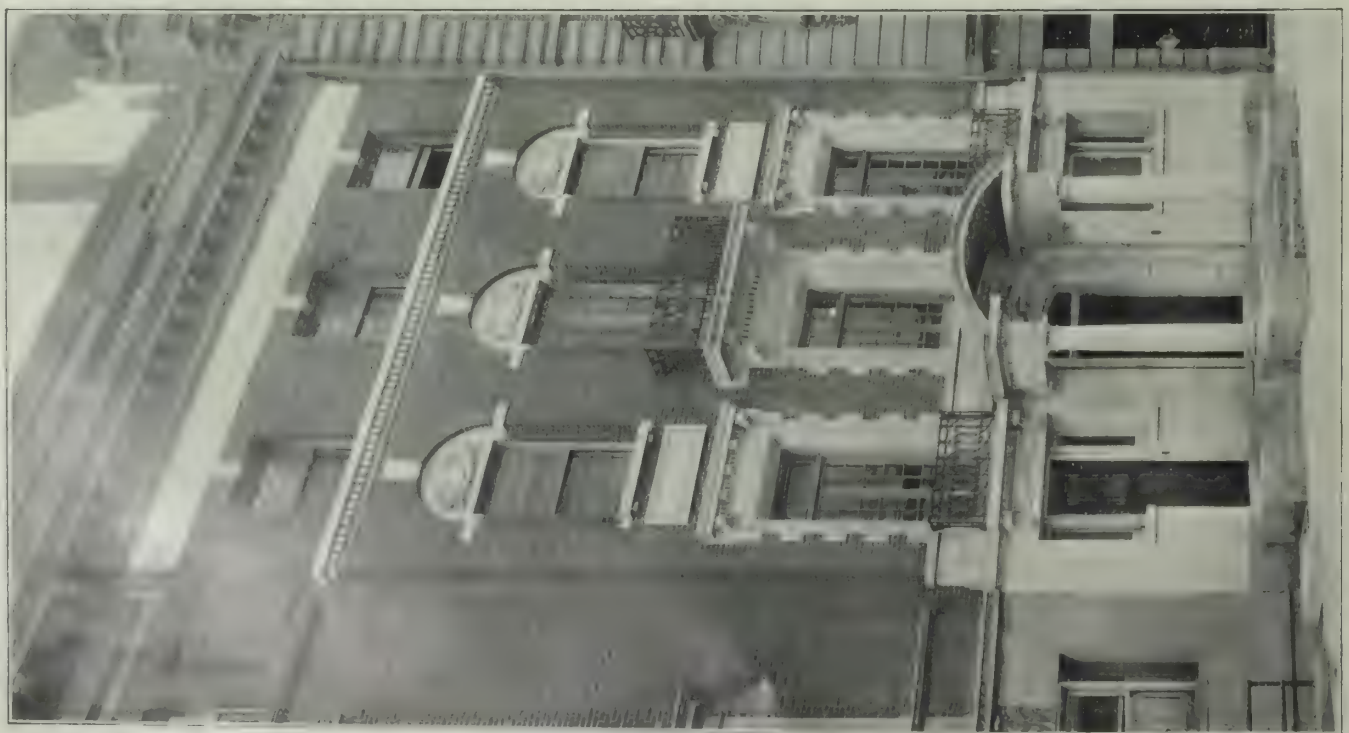
45 AND 47 E. 10TH ST. N.Y.
S. EDSON GAGE, ARCHITECT.
NEW YORK CITY HOUSE



10 EAST 4TH STREET.



NEW YORK CITY HOUSES.



10 EAST 4TH STREET.

sharp angle. The whole floor is framed and balanced upon a central pivot.

The designing of scenery is very largely in the hands of specialists who have grown up in the business. Only rarely is scenery designed by an architect or one who has made it an artistic study. The late E. W. Godwin of London was an architect who did a lot of very interesting scenery for Henry Irving. Mr. Frank Chouteau Brown has designed some very creditable scenery for the Castle Square Theater, Boston, and there are individual scene painters throughout the country who are thoroughly artistic in temperament and are constantly trying to do good work, but for the most part the scenery which is inflicted upon the public is of very low artistic order. The unrealness of the stage seems to permeate the artists who do the scenery, for seldom are they willing to even copy an architecturally good interior or a bit of real architecture, but they seem to delight in impossible moldings, fantastic constructions and bizarre combinations of color. Only rarely do we find a bit of scenery like the ballroom scene in *Erminie* which Francis Wilson drew pretty straight from the Royal Belvedere Palace at Vienna. The use of operation, in simplicity of construction and in quickness of manipulation our stage settings are way ahead of anything that is done abroad, but we seldom see here the character of artistic work in scenery which is so marked a feature of the productions of houses like the Paris Opera House.

There is one difficulty with our present methods of stage setting. They take too much time, or if hurried, the details of properties, lights, etc., are apt to suffer. There is a device which very materially reduces the time required between acts and offers some most alluring possibilities, namely, the revolving stage. This was tried to a limited extent in the old Madison Square Theatre, New York, and on a small scale was used a good deal for the "living pictures" which had such a vogue a few years since in the vaudeville houses. It has not yet been fully

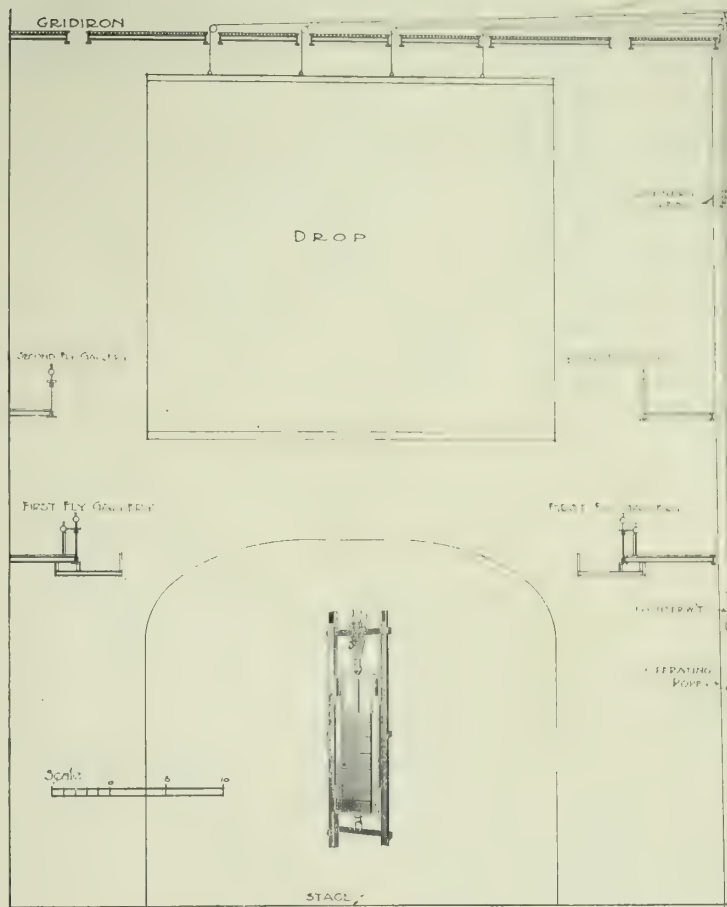


FIG. 11. SECTION SHOWING COUNTERWEIGHT FOR SCENERY.

Night, with two garden scenes and two interiors set at the same time, while two more very effective interiors, the Duke's palace and Olivia's house, are formed by simple pleated drapery dropped in front of the set scenes. The whole platform is rotated by four men, with the leverage of handspikes thrust into sockets in the floor. Towards the audience the scene is framed by adjustable inner tormentors, and to change a scene the whole stage is simply rotated, in full view of the audience. The lighting is one of the specially good features of this device. Of course sky borders would be out of the question, and rows of border lights could not be used to advantage unless they could be masked by borders. Consequently, for the outdoor effects, a plain white panorama cloth is hung so as to entirely encircle the stage, and is illuminated by four arc lamps hung as shown by the sketch. Behind the inner tormentor drapery is a light bridge with a single row of incandescent border lights, also some amber spot lights. The white back cloth under the arc light takes a pale blue tone giving a well nigh perfect illusion of outdoor sunlight and blue sky.

One scene can be set and thoroughly studied by the stage manager while an act is before the public, and long

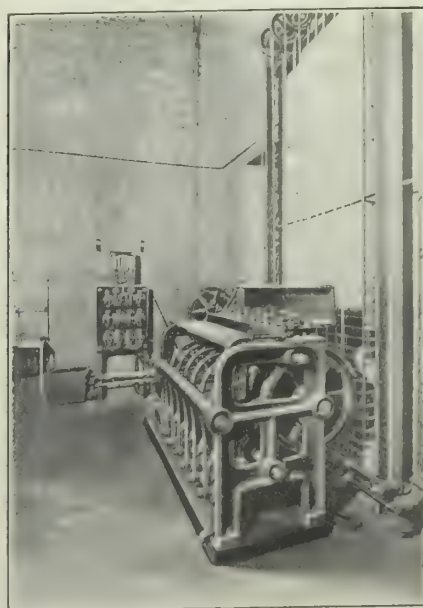


FIG. 12. ELECTRIC SCENE HOISTS.

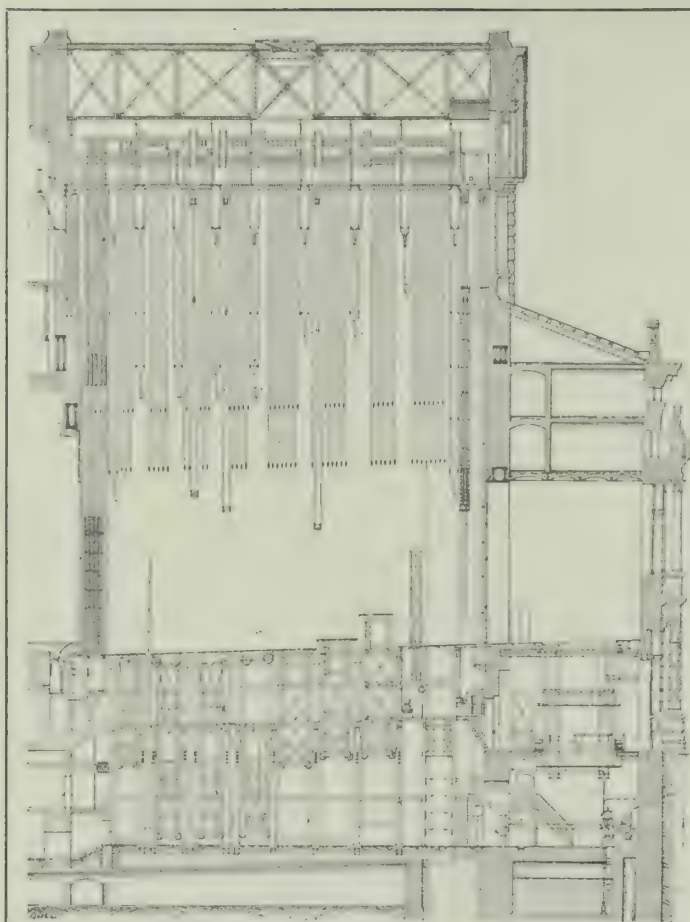


FIG. 13. TRANSVERSE SECTION OF STAGE, COURT THEATER, VIENNA.

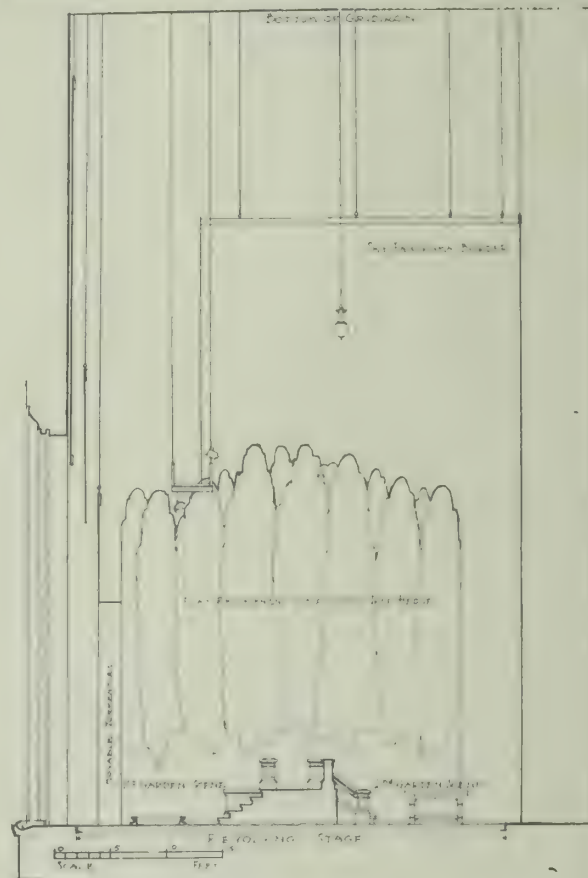


FIG. 15. SKETCH SECTION, REVOLVING STAGE, DEUTSCHE THEATER, BERLIN.

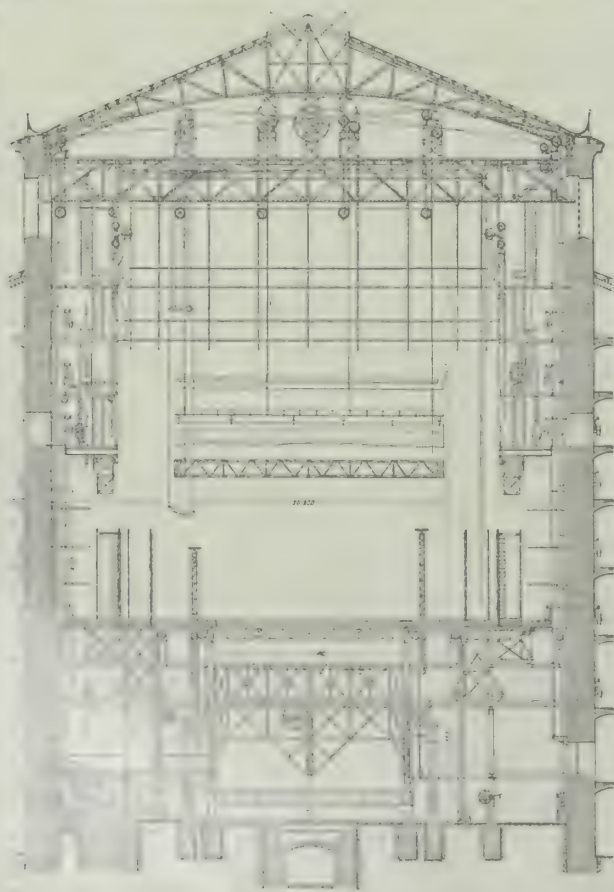
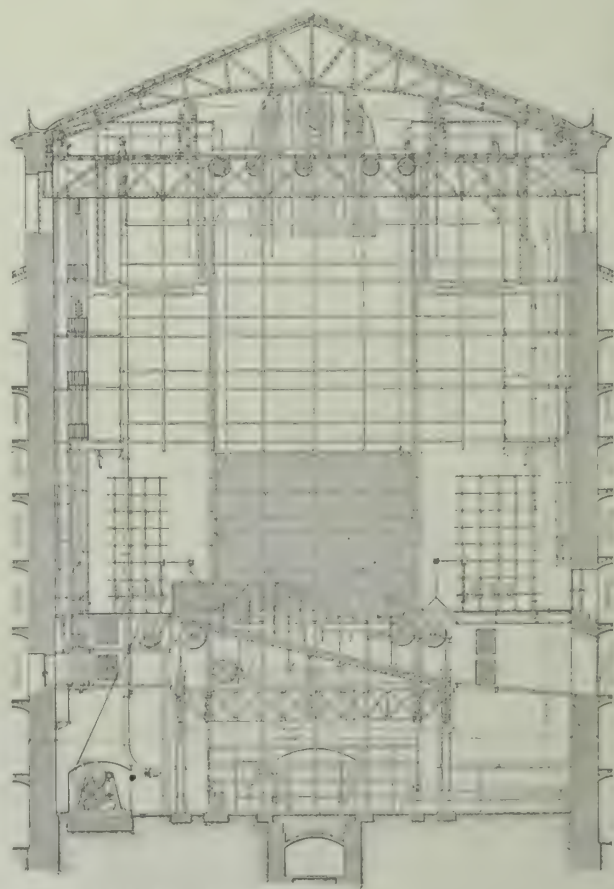


FIG. 14. CROSS SECTION OF STAGE, COURT THEATER, VIENNA.



waits can be absolutely avoided by this device. It allows a freedom in scene setting and design which is not possible with the ordinary system, and the cost is but trifling, while in principle it is extremely simple. It is not applicable to all stage conditions, but for small dramas and comedies, Shakespeare, and, to a more limited extent, for some operas it certainly offers great possibilities. A stage equipped with a revolver could at the same time use the ordinary setting, when desired.

THE situation regarding the Equitable's proposed 1000-foot skyscraper in New York City seems to develop uncertainties. The plans have been approved by the New York City building department; but the *Tribune* announces that the protests of thousands of the Equitable's policy holders are causing the officers of the society to hesitate before putting \$10,000,000 of the policy-holders' money into such a structure. "Some of the largest policy holders," says that paper, "have submitted to the society as an alternative proposal that of selling the present building and site, which are valued at anywhere from \$15,000,000 to \$20,000,000, and of then erecting a building much further uptown, at a cost for site and construction of about \$5,000,000 or \$6,000,000, the rest of the money to be distributed among the policy holders. This, it is argued, would appeal to all that conservative element of the population who constitute the principal body of insured, and would prove a far more effective advertisement for the society than any 100-foot-high building."

THE new Sing Sing prison, which New York State is to build in the highlands of the Hudson, is to be the

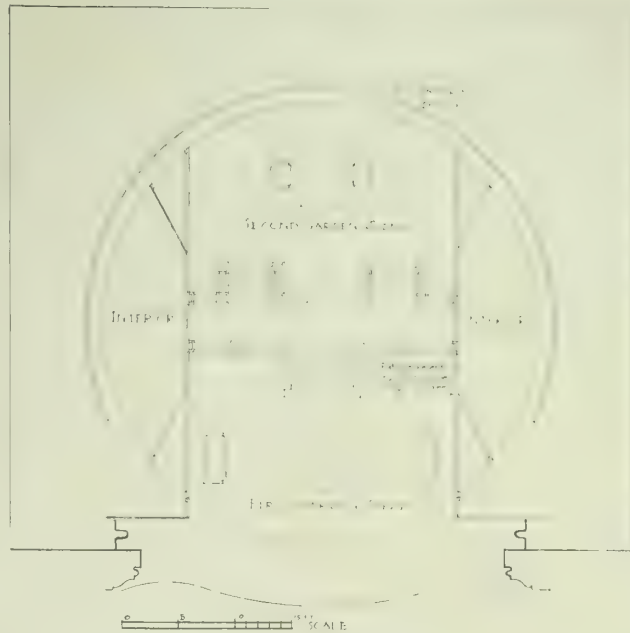
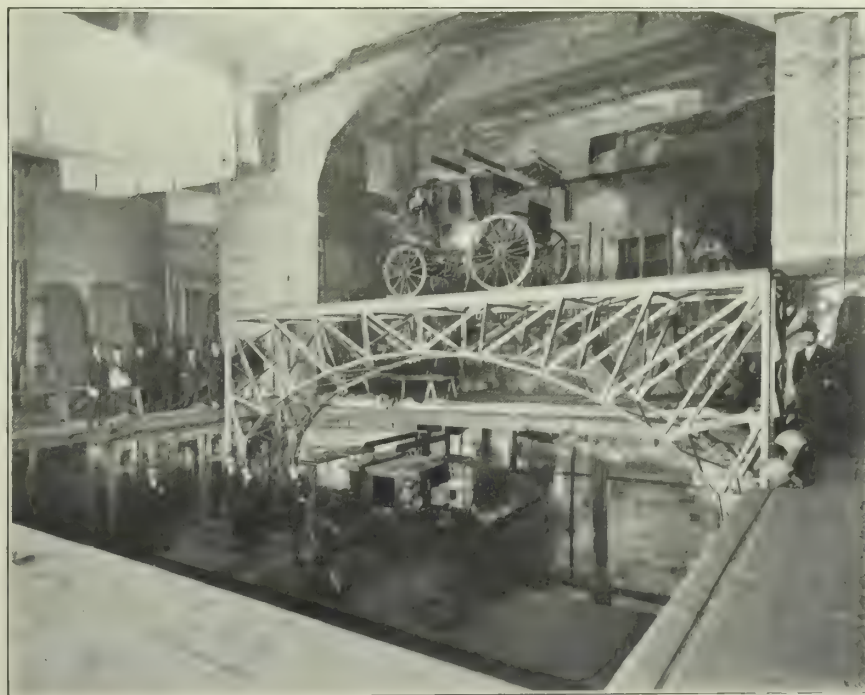


FIG. 16. SKETCH PLAN OF REVOLVING STAGE OF DEUTSCHE THEATER, BERLIN.

been deemed quite out of order in the old days. How far an advance is to be marked appears in the fact that enameled steel is to be used in the cells and all interior walls will be of porcelain enamel, the same as bath tubs. Each cell will contain a water-closet, wash basin, running water, one bunk for prisoner and steel case for papers. The dimension of the cell will be 6 by 10 feet on the floor and 8 feet 6 inches in height.



ELECTRIC BRIDGE, COVENT GARDENS THEATER, LONDON.

EXPERTS anticipate the timber famine for the industrial world thirty years hence. Other prophets foresee an end to the coal supply and of iron. Happily there are other materials of the earth the supply of which is not threatened. The making of an infinitude of clay products will likely go on forever.

largest institution of its kind in the world. It is to cover about thirty acres of land, and the cell-house, which is to harbor two thousand prisoners, will be surrounded by large air spaces, and the height of the building will be restricted to four tiers, instead of eight or ten tiers, as has been the custom. The aim in the construction will be to make the new prison spacious, airy, well lighted, to provide it with modern sanitary devices, and to safeguard in every way the health of its inmates. The contrast with existing institutions of its sort will be almost startling. The idea in the new construction will be not only to provide for the security of the prisoners, but for their comfort and happiness as well — something which would have

THE French Government has at last decided to put the lower fortifications of Mont St. Michel under the category of "historic monuments" and to be guarded as such. This will preserve that unique and much visited island against the encroachments of hotels and cafés that have proposed various schemes to improve the entrances to their property at the expense of the beauty of the islands.

The Annual Convention of the Architectural League of America.

THE Annual Convention of the Architectural League of America was held at Detroit, September 17, 18, 19. In addition to the regular business sessions the delegates were entertained at a banquet tendered them by the Detroit Architectural Club which had in charge the arrangements for the convention. Excursions were also made to various points of interest about the city.

Frank C. Baldwin of Stratton & Baldwin, Detroit, was elected president for the ensuing year, and Boston was selected as the place for the next convention.

The following committees were appointed:—Education, Prof. Newton A. Wells, Urbana, Ill.; Prof. C. A. Martin, Ithaca, N. Y.; Herman V. Von Holst, Chicago. Traveling Scholarships, Prof. Percy Ash, Washington, D. C.; Albert G. Skeel and S. G. Gladwin, Cleveland. University Fellowships, Prof. Emil Lorch, Ann Arbor, Mich.; August G. Headman, Philadelphia; John T. Comes, Pittsburg. Publicity and Promotion, Jesse N. Watson, St. Louis; Alfred S. Alschuler, Chicago; John M. Lyle, Toronto. Architectural Annual, Louis C. Newhall, Boston; Charles Mason Remy, Washington, D. C.; L. C. Borie, Philadelphia.

N. Max Dunning, Chicago, Frank C. Baldwin, Detroit, and J. P. Hynes, Toronto, were appointed a committee to confer with the American Institute of Architects and the Society of Beaux Arts Architects with a view of obtaining closer affiliation and coöperation in the educational work of these societies.

The Committee on University Fellowships reported that but few applications had been made for the regular university scholarships, the reason undoubtedly being the lack of adequate general educational preparation. The committee called attention to the recommendations of last year by the committee on education, which urged that all draughtsmen seek to complete the requirements for entrance to college, in evening schools or by such other means as may be available.

The report of the Committee on Education was in substance as follows:

Early in the year the committee decided to send out a letter embodying the following questions:

1. Do you think it practicable to arrange the work of the office so that draughtsmen who wish to do so may spend a certain number of days of each month in pursuit of a definite course of architectural studies?
2. What, in your opinion, would be the best method of organizing courses of study to meet the requirements of the men whose time is largely occupied with office work?
3. If such courses could be organized what branches of study would best supplement office work to give a well rounded training for the practice of architecture?
4. Do you approve of the "Atelier" system and would you be willing to coöperate with the Architectural Club in your city or vicinity (a) in giving instruction to classes which they may organize, or (b) in giving financial aid toward the equipment of an atelier for the study of architectural design and kindred subjects?
5. If the plan of establishing "ateliers" or classes in connection with the architectural clubs of the League proves desirable and practicable, do you think that

periodical competitions organized by the League, possibly in conjunction with the A. I. A., in a manner similar to the Society of Beaux Arts Architects, might accomplish any results not already accomplished by that society toward the development of native taste in architectural forms and decorations.

Summary:—In taking up the questions in detail we find:

1. There is a strong trend of opinion against the practicability of allowing draughtsmen to take time out of regular office hours for the purpose of study.

2. It is the opinion of a large majority that such study must be pursued outside of office hours; also, that such study can never compensate for the lack of regular school training.

3. There is a strong trend of feeling in the profession that those men having the natural gifts of will and talent, which are worth cultivating, will overcome the difficulties standing in the way of educational training. It is also evident from replies received that general culture is considered as a first essential to the educational equipment of the architect and that those special branches of knowledge essential to successful practice of the art may be included under three heads,—Historical, Theoretical and Technical.

4. It is shown that more than 75 per cent of the replies favor the "Atelier" system as at present organized by the Beaux Arts Society. These significant facts appear, however; the "Atelier" system presupposes a goodly degree of educational training and is best adapted to aid in the development of skill in artistic designing among draughtsmen who have already acquired what the schools can give.

5. It would seem, from the replies received, that competitions are considered as a valuable stimulant and aid to progress and that there is a large body of draughtsmen throughout the country to whom the advantages of the Beaux Arts competitions are not available because of inadequate preparation or insularity of location. There is a division of opinion as to the advisability of organizing new or independent competitions by the League. In any case such competition must necessarily appeal to a lower grade of talent and preparation than do the competitions of the Beaux Arts Society.

The report was adopted with the following recommendations:

That the clubs put their energy to the stimulating of an enthusiastic activity among its members, which will banish from the club rooms the commercial spirit and establish a closer relationship between the older and the younger members.

That this can best be accomplished by the "Atelier" system of working, in which the older men give their time and energy to teaching the younger men by criticism, or working shoulder to shoulder with them.

That the education of draughtsmen should include a thorough training in design and in historical and technical knowledge, and to this end establish club "ateliers" and maintain and require attendance upon classes in construction, history of architecture and free-hand drawing from cast and life.

On the question of education which seemed to be the

(Continued on page 217.)

STANDARD ARCHITECTURAL BOOKS—III.

HISTORICAL MATERIAL BY PLACE, PERIOD AND STYLE.

MIDDLE AGES.

NOTWITHSTANDING the prodigious mass of literature which is constantly appearing on the general subject of mediæval art Viollet-le-Duc's great Dictionnaire still leads the field. Not only is it an inexhaustible treasury of information; it is also a strong book by a great writer, who appreciated fully the force of the historic movement which he did so much to make intelligible.

Emile Mâle, Professor of the History of Christian Art, Sorbonne, Paris. *L'Art religieux du XIII^e siècle en France; Étude sur l'iconographie du Moyen Age et sur ses sources d'inspiration. Ouvrage couronné par l'Académie des inscriptions et belles-lettres (Prix Fould).* New ed. Paris, Armand Colin, 1902; 4to (.275 x .22 x .035), 4 + 408 p., 127 ill.; 20 francs. There is danger that the student, in considering mediæval architecture, may treat it as an isolated phenomenon, and not as part of a world movement, into the temperament of which it is difficult for the modern mind to enter. An occasional look into Mâle's book will assist in the prevention of this limitation of sympathy.

William Henry Goodyear, Director of the Art Department of the Brooklyn Institute. *Vertical Curves and other Architectural Refinements in the Gothic Cathedrals and Churches of Northern France and in the Early Byzantine Churches at Constantinople.* Brooklyn Institute of Arts and Sciences Museum—Memoirs of Art and Archæology; vol. 1, No. 4; pamphlet. In a list of books on Mediæval Architecture we should certainly mention the great accomplishment of Professor Goodyear in his study of Architectural Refinements in mediæval buildings. Of the large amount of matter, however, which he has published, the greater part has appeared in periodicals and not in separate books. This pamphlet will serve to introduce a most important subject. It is hoped that a definite book will appear soon.

Barr Ferree, Member of the Société de l'histoire de France, Paris, author of several works on architecture. *The Chronology of the Cathedral Churches of France.* New York, privately printed from the Architectural Record, 1899; 8vo, pamphlet, 36 p. This little pamphlet forms the fourth part (vol. 3, p. 387) of a series of articles on French Cathedrals published by the author in the Architectural Record. (Vol. 2-8, 1892-1899.) Any chronology of mediæval architecture must be more or less conjectural, but this attempt is, doubtless, as accurate as any, and in its tabulated form is convenient.

Bell's Handbooks to Continental Churches. Six monographs uniform with the English Cathedral series; cloth, 2s. 6d. For description of these books see the English Cathedral series to follow.

George Edmund Street (b. 1824 d. 1881) F. S. A., F. R. I. B. A., Architect of the New Law Court in London. *Brick and Marble in the Middle Ages, Notes of a Tour in the North of Italy.* Second edition, London, John Murray, 1874; 8vo (.23 x .115 x .045), 26 + 415 p., ill., 63 pl., tables; 26 shillings. This is far from being a technical treatise on the architecture of Northern Italy.

It is rather a memoir of many vacation trips in the region; giving the impressions of a great architect upon many matters, not exclusively architectural. Even among more modern special works on the region there is little criticism more valuable.

John Ruskin (b. 1819, d. 1900). *The Stones of Venice.* The usual bibliographical description is omitted. Unless the collector can indulge in one of the fine English editions printed under the author's direction, it does not much matter which of the many reprints he acquires. It is difficult to read Ruskin in these days; the world has outgrown his peculiar type of mind, but the fact remains that of the many able men of his generation, who helped to rescue and preserve the remnants of mediæval art, Ruskin had the keenest appreciation of their finest qualities. His best criticism of mediæval architecture is as fine as any, and some of his best is in the two books mentioned in this list.

John Ruskin. *The Seven Lamps of Architecture.* See note to Ruskin's *Stones of Venice.*

Edmund Sharpe (b. 1809, d. 1877), M. A., F. R. I. B. A., architect and author of several important works on architecture. *The Seven Periods of English Architecture* defined and illustrated. Third edition, London, Spon, 1888; 4to (.25 x .155 x .015), 15 + 37 + 1 p., ill., 22 pl.; 15 shillings. Rickman's "Attempt to discriminate the Styles of English Architecture" has not been included in this list because, good as it is, his classification is superseded by this of Sharpe. The form of Sharpe's book is excellent, a careful description in text, and then a series of beautiful plates giving inside and outside views of one bay each from recognized models of the different styles.

Edmund Sharpe. *A treatise on the Rise and Progress of Decorated Window Tracery in England.* London, Van Voorst, 1849; 8vo (.225 x .195 x .02), 2 vols. in 1, ill., 66 pl. Volume 2 has title: *Decorated Windows*, a series of illustrations of the Window Tracery of the Decorated Style of Ecclesiastical Architecture. The two vols., bound together in half morocco were sold in 1849 for 18s. 6d. Sharpe's *Decorated Window Tracery* is an earlier book than the *Seven Periods* but hardly less important. It has the same extreme clearness of presentation both in the text and in the excellent steel plates.

Francis Bond, M. A., Honorary Associate of the Royal Institute of British Architects. *Gothic Architecture in England; an Analysis of the Origin and Development of English Church Architecture from the Norman Conquest to the Dissolution of the Monasteries.* London, B. T. Batsford, 1905; 4to (.27 x .195 x .06); 2 + 782 p., 1254 ill.; comprising 785 photographs, sketches and measured drawings, and 469 plans, sections, diagrams and moldings; cloth 31 s. 6 d., net.

Bond's *Gothic Architecture* has many interesting characteristics. The merely historical part is brief and in the rather rigid but useful form of a chronology. The greater part of the book is made up of careful discussions of various features, as vaults, choirs, transepts, moldings, tracery, etc. These, with the abundant and competent indexes, give the book the character of a thorough encyclopedia of English Gothic Architecture.

Mrs. Schuyler van Rensselaer, author of *Henry Hob-*

son Richardson and His Works, etc. English Cathedrals; Canterbury, Peterborough, Durham, Salisbury, Lichfield, Lincoln, Ely, Wells, Winchester, Gloucester, York, London, illustrated with 154 drawings by Joseph Pennell, also with plans and diagrams. New York, the Century Co., 1892; 4to (.275 x .19 x .045), 29 + 395 p., ill.; cloth, \$6.00. This book is frankly the work of an amateur for amateurs, but the English Cathedrals invite this sort of sympathetic treatment, and the extraordinary series of illustrations by Joseph Pennell present the most delightful impression of the picturesqueness of English Gothic which is to be found in any book.

Edward S. Prior, M. A. A History of Gothic Art in England, with illustrations by Gerald C. Horsley, and many plans and diagrams. London, George Bell & Sons, 1900; 4to (.285 x .2 x .04), 14 + 465 p., ill.; cloth, 31s. 6d., net. An interesting manual with good maps and plans.

Bell's Cathedral Series. English Cathedrals; an Itinerary and Description; compiled by J. G. Gilchrist, A. M., M. D.; revised and edited, with an introduction on Cathedral Architecture by Rev. T. Perkins, M. A., F. R. A. S.; with thirty-three Monographs on the Cathedrals, and eight Monographs on Abbeys and Churches. London, George Bell & Sons, series current; 8vo (.19 x .13 x .01); profusely illustrated, plans, etc.; cloth, 1s. 6d. each. These little monographs of the Bell series are extremely convenient and thorough. If not the entire series a selection is within the reach of any library.

Charles Eliot Norton, Professor Emeritus in the History of Art, Harvard University. Historical Studies of Church Buildings in the Middle Ages; Venice, Siena, Florence. New York, Harper & Bros., 1880; 8vo (.23 x .16 x .04), 6 + 331 p.; cloth, \$3.00. Professor Norton's book on the three great mediæval churches of Italy, St. Mark's in Venice and the cathedrals of Siena and Florence, is a broad and sympathetic survey of historical conditions which surrounded the conception and construction of these buildings. It is most scholarly and interesting.

George Edmund Street. Some account of Gothic Architecture in Spain. Second ed.; London, John Murray, 1869; 8vo (.24 x .165 x .05), 14 + 527 p., ill.; 30 shillings. There are several works with abundant photographic illustrations of Spanish architecture, but none of them take the place of this fine English book by an architect greatly esteemed in his day.

RENAISSANCE.

William J. Anderson. The Architecture of the Renaissance in Italy, a general View for use of Students and others. Second ed. revised and enlarged; London, B. T. Batsford, 1898; 8vo (.235 x .16 x .035), 18 + 1 + 135 p. with 64 collotypes and other plates and 98 ill.; cloth, 12s. 6d. net. Anderson's Renaissance does for its chosen style and period a work similar to that accomplished by Moore's Gothic Architecture in its sphere. It is a necessity in any library, and in many small collections will do the greater part of the work. With d'Espouy to supplement its illustrations, the period is well covered.

Marie-Désiré-Hector-Jean-Baptiste d'Espouy. Fragments d'Architecture du Mûyen Age et de la Renaissance d'après les relevés et restaurations des anciens pensionnaires de l'Académie de France à Rome. Paris, Charles Schmid, without date (1897); small fol. (.45 x .34 x .045),

4 + 5 p., 100 pl.; 150 francs. The notes on the Fragments d'Architecture Antique of d'Espouy apply very well to the present work. During the second and third years of their pensionnate in Rome the winners of the Grand Prix in architecture are obliged to send studies of mediæval and Renaissance architecture to Paris. From the accumulation of these Professor d'Espouy has made this useful selection.

César-Denis Daly (b. 1811, d. 1894), Editor of the Revue Général de l'Architecture. Motifs historique d'Architecture et de Sculpture d'Ornement. First series, Choix de fragments empruntés à des Monuments français du commencement de la Renaissance à la fin de Louis XVI. Second series, Décorations intérieures empruntées à des édifices français du commencement de la Renaissance à la fin de Louis XVI. Paris, Ducher et Cie., 1870-1880; fol. (.45 x .34 x .045), 2 ser. in 4 vols., ill., 398 pl.; 300 francs, unbound. To cover the period from the end of the Gothic to the beginning of the modern eras in France, there is nothing better than the Motifs Historiques. Daly selected the most characteristic and beautiful features of the French Renaissance and the styles of the four Louis, engraved them beautifully and arranged them in such order as to present the chronological development.

Claude Sauvageot, Director of l'Art Pour Tous. Palais, Châteaux, Hôtels et Maisons de France du XV^e siècle. Paris, Morel, 1867; small fol. (.395 x .29 x .045), 4 vols., ill., 294 pl.; \$60, unbound. It may be said quite truly that the French Renaissance appears at its best in the minor buildings, which developed during the reigns of the kings from François I to Louis XIII. These buildings are full of charming details which are suggestive in their application to modern work. The best collection is this of Sauvageot.

Charles Thompson Matthews, M. A., architect. The Renaissance under the Valois, a sketch in French Architectural History. New York, William T. Comstock, 1893; fol. (.435 x .335 x .03), 23 p., ill.; cloth, \$15. This monograph of Mr. Matthews is by an architect for architects, and quite useful.

Lady Emilia Frances (Strong) Pattison Dilke (b. 1840, d. 1904). Author of the Renaissance in France, etc. French Architects and Sculptors of the eighteenth century. London, George Bell & Sons, 1900; 4to (.29 x .2 x .04), 17 + 217 p., 42 pl.; cloth, 28 shillings net. The works on later French architecture which we recommend have been mainly technical, appealing to the architect and practical designer. We may introduce a book in a lighter historical tone. The eighteenth century should be studied more than it is by American architects. The literature of the subject is large, but for the most part beyond the limits of our present endeavor.

John Belcher, A. R. A., and Mervyn E. Macartney. Later Renaissance Architecture in England, a series of Examples of the domestic Buildings erected subsequent to the Elizabethan period, with introductory and descriptive text. London, Batsford; New York, Scribner's, 1901; fol. (.49 x .385 x .045), 2 vols., 153 ill., 170 pl.; \$45 unbound. The English country house found a style well adapted to its necessities in the fine classic type with which the work of Belcher and Macartney is chiefly concerned.

THE ANNUAL CONVENTION OF THE ARCHITECTURAL LEAGUE OF AMERICA.

(Continued from page 214.)

most important subject before the convention, we quote some of the remarks made by the delegates:

LOUIS C. NEWHALL (*Boston*). "The most important thing is that of education. The League is made up of the younger men, and the educational work should be more or less under the direction of the Architectural League of America and the Beaux Arts Society of New York, and perhaps some of the members of the American Institute of Architects. I think the Institute should represent the professional end of it, so that membership in the Institute should be an honor to be conferred for accomplishment. We should have a definite qualification for our membership in the League, and no man should be admitted unless he has had a certain amount of education along certain lines, and then when he has attained that education he will be in a position to take advantage of what the League may be able to give him."

JOHN M. LYLE (*Toronto*). "Speaking as a Beaux Arts man I may say that the difficulty we have to contend with is in the small towns. It seems to me that the Beaux Arts system of education has accomplished something in the way of education, and has by the competitive brought the weak and the strong men together, and it has been found that the strong man will pull the weaker man up with him always, but such an advantage is hard to get in the small town. It works all right in the larger cities. The Beaux Arts Society has been criticised as trying to bring French architecture to America. I do not think the members of the society have that idea at all; the idea is to establish the Beaux Arts System of training here, not the architecture. It seems to me that as Americans we have always had strong personalities, but never any great number of men working together in the same ideas. If you have too much individuality you are going to have pandemonium, and I think the League should put itself on record as working along some certain lines."

EMIL LORCH (*Ann Arbor*). "There is no doubt that when it comes to teaching, the Beaux Arts Society is doing it the best of any society in the world, but is that the way we are going to get American architecture? In other words, if we take the architecture of Greece and the architecture of Rome, will we have out of it an American architecture in time? I say we cannot. We want to foster something that is really our own, and we must not forget that we, like the old Gothic architects, stand on the brink of an era."

HERMAN V. VON HOLST (*Chicago*). "I am very vitally interested in education as it touches the nature of architecture. I think well of the Beaux Arts system, where all the big men and the little men get together and where it is the practice of the big men to uplift the smaller minds; that to me is the essential process of education among human beings, and I detest any reference to the establishment of any system of education wherein such a thing as examinations occurs; it suggests a thing that is un-American. I do not like any suggestion of a system of education that will put out a sort of examination that men must cram for before they can accomplish anything, and so I welcome that little hint as to the method of the Beaux Arts Society, and I am heartily in favor of trying

to do something, as a member of this League, to systematize the educational efforts, that a man's ability may be recognized, and a mark put upon him—a certificate, if you like—to show what he is capable of. Of course we all understand that we must have some foundation of education, that a man must know something of the higher mathematics, but with all this, I say let us be careful not to establish a system of examination that will make a man purely mechanical as an architect.

"Architecture, according to my idea is the most difficult branch of work that a human being can attempt, because all work, all architecture, if it is perfect, must be a perfect organism, which is a perfect unit. The trouble now with our draughtsmen is that we have to keep them shut up in stuffy offices, possibly, working by electric light all day, and they do not get out into the open, into the parks, etc., except, possibly, on Saturday or Sunday, and with these constant surroundings where can they get the true inspiration for their work? I think that the local clubs should, in the education which they may establish, try to give the members, and cultivate in the members a love of the out-door nature, and a healthy feeling for it, and keep their own individuality alive by joining the communities in trying to solve the problems for better and more beautiful cities, which are the problems that all important cities in this country are setting themselves to-day."

J. P. HYNES (*Toronto*). "You started out to discuss the responsibility of this organization to education, and that means we must fasten it down to some responsibility of the clubs. Up to the present we have recognized no foundation on which to build professional knowledge; some suggest a certain amount of office work, others contact with architectural clubs, and I think that everyone will recognize that we will not get it in this way. It is the first duty of the architectural body to see that a systematic education is laid at the start, and then they may possibly be able to solve all the other questions. In that respect I feel that this League and the clubs that compose it have this very first duty to perform, but I contend that it is not the duty of these clubs to supply an architectural education for the community. The clubs should take up some part of the Beaux Arts Society training after they have a scientific and historical knowledge on which to work. If we are to establish a national style we must start on some educational basis first."

PROF. NEWTON A. WELLS (*Urbana*). "The schools have their field of endeavor, they must be technical and they must give a general education; there is the high school, the college, the university, and the technical school, which teaches the higher mathematics and also teaches the rudiments of design, but all that is educational work that should precede the work of the Beaux Arts Society. There is, however, another class of men, located in our various clubs, who have not yet risen to the point, perhaps, where they are competent to enter the Beaux Arts competitions. What we want to get at is what to do and how best to do it, to pull along with the Beaux Art Society and not to tread on its ground, and I think we should keep in mind that the League is made up of young men, beginners, and that we have the Institute always to look forward to; that we should not rival it in its branch of the work, but willingly take our place in the world's work and do what we can."

Editorial Comment and Miscellany

THE GREAT DAILIES ARE LENDING A HAND.

A NET loss from business failures in the United States of \$252,000,000 in a year would create a panic. A decrease in the value of all of the agricultural products of the country for a year amounting to \$252,000,000 would lessen the purchasing power of the people and handicap all industry and commerce. Carelessness which would result in the loss of a quarter of a billion dollars from the United States treasury would be a crime inconceivable. But the losses by fire in the United States during the past four years have averaged \$252,000,000 each twelve months, and



CHAPIN & GORE BUILDING, CHICAGO.
Richard Schmidt, Architect.

the daily record of fires continues without receiving special consideration, except as there may be some startling features that attract passing interest. A great conflagration startles the people and rouses them to some inquiry as to causes and preventives. Public sentiment in the mass is stirred and legislative bodies respond with statutes and ordinances of salutary intent. But the fires still continue. There is little diminution of the monthly record of loss. The minor fires are as numerous as ever and the greater losses come with startling regularity. Fifty per cent of these fires are due to carelessness. The Americans, showing the virtue of vigilance as a mass, are not heeding the warning as individuals.

The American insurance underwriters have repeatedly sought to avert this unnecessary waste. The National



COMMERCIAL BLOCK, NEWBURY STREET AND MASSACHUSETTS AVE., BOSTON.
Bowditch & Stratton, Architects.

Fire Protection Association, originally organized by insurance interests, is an active force in the interest of fire prevention, investigating important fires and giving publicity to facts for educational and warning purposes. With the continued increase in annual fire loss, the underwriters have foreseen the time when insurance rates would rise and when, in fact, insurance might become impossible. That is not an exaggerated fear. The San Francisco calamity forced several insurance companies out of business. In the last fifty years 1000 insurance companies in the United States, or more than three times



COMMERCIAL BLOCK, HANOVER AND UNION STREETS, BOSTON.
Wheelwright & Haven, Architects.

the number of existing companies, have been forced to withdraw. In the last ten-year period the insurance business shows an underwriting loss of $4\frac{1}{2}$ per cent of the premiums received. How long will capital be attracted to the insurance business, with its constantly increasing hazard and loss? The American underwriters have made no prediction, but much significance is attached to the attitude of the foreign companies, who in the past have carried a large amount of American insurance. From time to time they have been narrowing the limits of their risks. Now it is said that European companies are becoming so alarmed over the increasing losses in the United States that they are seriously contemplating withdrawal from this country. A recent semi-official statement from these quarters is attracting attention among property owners. Investigation of the facts as shown by the records indicates that the foreign insurance interests are not unnecessarily alarmed. The loss in the San Francisco conflagration was \$350,000,000. If a fire in the congested portion of New York city should cover an area as large as that of the San Francisco fire, it is estimated that every insurance company doing business in the



HUDSON TERMINAL BUILDINGS, NEW YORK.

Clinton & Russell, Architects.

Upper walls of architectural terra cotta, gray interspersed with reddish hue.
Atlantic Terra Cotta Co., Makers.



CORRIDOR IN THE HUDSON TERMINAL BUILDINGS.
Showing use of Guastavino glazed tile for ceiling.

country would be put out of business. But is such a conflagration impossible? Is New York city free from danger spots, or is its fire fighting apparatus equal to any test?

What are the conditions that exist in the average American city? Chelsea was swept by fire because for years after it had been warned of the danger of its "rag district" it tolerated the tinder box which, once fired, created a blaze which no apparatus could quench. Unkempt dumps, piles of tinder fire traps exist in other cities and invite the conflagration fiend, but people refuse to recognize the danger. The lack of individual responsibility is even more marked than is the absence of thoughtful and careful public opinion. The cigarette butt is still snapped away without regard to where it may light. The match is thrown down carelessly or its snapping head allowed to lie untouched until some bootheel may crush and ignite it. Men still hunt gas leaks with matches, women pour oil on fires to brighten the flame, money is wasted in cheap construction under the pretence of saving it. In scores of ways individual carelessness and recklessness aid the fire fiend.

Conservation is the problem of the future. Man's resources are exhaustible. The discovery of new resources and new forces is not endless. Man must learn to save and make the most of what he has. Waste must be



TOURO INFIRMARY, NEW ORLEANS, LA. Favrot & Livandias, Architects.
Brick made by Hydraulic Press Brick Co., St. Louis.

stopped. It is the problem of life. To save health and strength for the later years of activity; to save money and goods for the time of famine; to save forests against the time of vanishing timber supply. Waste is the evil of the day. Conservation is the virtue of the future. The preventable waste of 50 per cent of \$252,000,000 a year is a national folly. It is worse; it is a national disgrace.—*Editorial from the Boston Herald.*

BUILDING OPERATIONS FOR AUGUST.

THERE is a loss of 10 per cent in the aggregate building operations of forty-two leading cities throughout the country, as reported by the *American Contractor*, New York, compared with August, 1907; the previous months of the year all presented a loss except July, as follows: January, 44 per cent; February, 33 per cent; March, 37 per cent; April, 33 per cent; May, 19 per cent; June, 15 per cent. July showed an increase of $3\frac{1}{2}$ per cent. In the report for August thirteen cities scored a gain from 1 to 224 per cent and twenty-nine show a loss from 2 to 89 per cent. The principal gains are: Chicago, 25 per cent; Denver, 24; Indianapolis, 33; Louisville, 27; Syracuse, 25; Salt Lake City, 128; San Antonio, 224.

IN GENERAL.

Brooklyn's new Academy of Music, which has cost \$1,300,000, was opened to the public on September 16; six thousand tickets having been issued for the occasion.

The Brotherhood of Locomotive Engineers is to build a new home for itself and

office building in Cleveland that will represent a total outlay of a million dollars.

The new Municipal Courts Building to be erected near the City Hall of St. Louis will cost about \$2,000,000. Isaac S. Taylor is the architect.

The plans of architects Wood, Donn & Deming for a large laboratory for the National Bureau of Standards in Washington are being estimated on.

Estimates are being submitted for the new Public Library, St. Louis, Cass Gilbert, architect. The cost of the building, not including furnishings, will be about a million and a quarter.

York & Sawyer, as architects for John D. Rockefeller, have filed plans in New York for the main hospital building and isolation annex of the Rockefeller Institute for Medical Research.

Estimates having been obtained upon the completed plans for the new Grand Central Station, New York, contracts for the superstructure of the north wing are being signed. The total cost will reach \$20,000,000.

The Chicago & Northwestern Railway is clearing four large blocks in Chicago for its magnificent new \$20,000,000 station, which is to be capable of moving 250,000 passengers every twenty-four hours.

The big Pullman shops near Chicago, it is reported are to be razed and rebuilt upon an enormous scale for the manufacture of steel palace cars. Sixty acres are to be added to the area of the Company's shops and this involves the practical remaking of the town.

The disastrous fires re-



CORNICE, CORN EXCHANGE BANK, CHICAGO.

Shepley, Rutan & Coolidge, Architects.
Made by American Terra Cotta and Ceramic Co.



LIVE STOCK PAVILION, INDIANAPOLIS, IND.
Rubush & Hunter, Architects.

Roofed with red fire-flashed tile, made by Ludowici-Celadon Co.

ported at several English country seats, notably Winston Spencer Churchill's and Lord Brassey's, only go to show that fireproof building materials can alone preserve architectural beauty as it is found in the grandeur of an aged pile.

In the wake of the passing Fifth Avenue Hotel follows the Everett House, the old and well-known hotel on the Union Square Plaza at the Fourth Avenue corner. On this site a 16-story office and loft building is to be erected at a cost of \$650,000. The materials are to be brick and granite with trimmings of limestone and terra cotta.

Architects Hiss & Weeks have filed plans for what is declared the largest apartment house in the country. It will occupy the entire block bounded by Broadway, Amsterdam Avenue, 86th and 87th streets in New York. It will be twelve stories in height and will contain one hundred and seventy-five apartments of from nine to twelve rooms each. An important feature is the interior courtyard measuring 250 by

100 feet. The building will cost about \$3,000,000.

Columbia University will offer at night, during the year 1908-1909, twenty evening courses specially adapted to the needs of technical and professional workers. This includes work in applied mechanics, applied physics, architecture, electricity, fine arts, industrial chemistry, mathematics and surveying and structures. The work begins on October 26, and continues for twenty-five weeks. A full description of the courses is contained in the Announcement of Extension Teaching, which may be ob-

ton men, Mr. Larsen being in the office of Shepley, Rutan & Coolidge, while Mr. Fox is in the office of C. H. Blackall. The award was made by Ralph Adams Cram, representing the league, and Professor Warren and his associates, of the Department of Architecture, Harvard University.

The Committee on University Scholarships announces that the Washington University of St. Louis, Mo., has granted the League a scholarship in architecture. This scholarship will entitle its holder to four years of free tuition in the Department of Architecture of the Washington University. Further information relative to scholarships can be secured by addressing Prof. Emil Lorch, Ann Arbor, Mich.

The T Square Club of Philadelphia announces for the near future the publication of volume two of "American Competitions." The splendid reception given volume one by architects

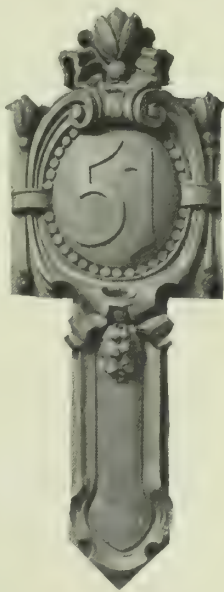
has proven beyond a doubt the real value of this work; and the T Square Club has announced its intention to continue the publication. The Committee which has been appointed by the club to carry on this work consists of Adin B. Lacey, editor; Alexander M. Adams, treasurer; and Virgil L. Johnson, custodian of drawings. The character of the work will be the same as last year, the title fully indicating its contents. The tentative list of competitions in-

tained on application to the Director of Extension Teaching, Columbia University, New York City.

The two special scholarships of the Architectural League of America in Harvard University have been awarded to W. H. Larsen and George Fox. The successful competitors are Bos-



MAIN BUILDING OF MINNESOTA AGRICULTURAL SCHOOL, ST. PAUL.
Clarence H. Johnson, Architect.
Built of dark seal brown mottled brick, made by Twin City Brick Co.



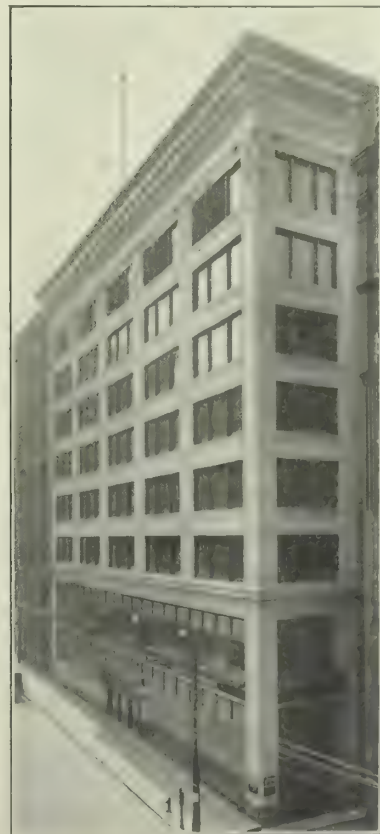
DETAIL BY HILL & STOUT, ARCHITECTS.
South Amboy Terra Cotta Co., Makers.



DETAIL FOR RACQUET CLUB, ST. LOUIS.
Mauran, Russell & Garden, Architects.
Made by Winkle Terra Cotta Co.



DETAIL BY WILLIAM STEELE & SONS CO., ARCHITECTS.
New York Architectural Terra Cotta Co., Makers.



SPEAR & COMPANY BUILDING, PITTSBURG, PA.
Charles Bickel, Architect.
Front of cream enameled terra cotta, made by Northwestern Terra Cotta Co.

cludes for this year the Porto Rican Capitol, New York State Prison, Y. M. C. A., Pittsburg, and the Municipal Office Building of the city of New York.

Architect Eli Benedict will conduct the course in plan reading and estimating at the 23d Street Y. M. C. A., New York, during the coming season. Samples of building materials are solicited.

Lackey & Davis, architects, have opened an office at 304 Market Street, Camden, N. J. Manufacturers catalogues and samples desired.

A partnership has been formed for the practice of architecture, to be known as Pond & Booth, between L. M. Pond, late of New York City and L. L. Booth, late of Poughkeepsie, N. Y. Offices are located in Symons Block, Spokane, Wash. Manufacturers, catalogues are desired.

Several large building enterprises are being started in Philadelphia: John Wanamaker has placed a \$6,000,000 mortgage upon his store property as security for a bond issue with the proceeds of which the 15-story modern store building erected two years ago and left incomplete along its southern boundary will be immediately extended over the entire Wanamaker block. The completed structure will be one of the most imposing objects in the city, and it will contain forty-five acres of floor area. D. H. Burnham is the architect. . . . Workmen are about beginning to demolish the old buildings occupying the block immediately north of Washington Square and to prepare this site for the enormous new building for The Curtis Publishing Co. The plans have been prepared by Edgar V. Seeler. . . . The Union League Club has decided to erect at once a fine modern building which is to occupy the half block remaining between the present club-house and Fifteenth Street. The location is very valuable, on account of its close proximity to the center of the city, and Horace Trumbauer, who is preparing the plans, will therefore devote a portion of the building to offices.

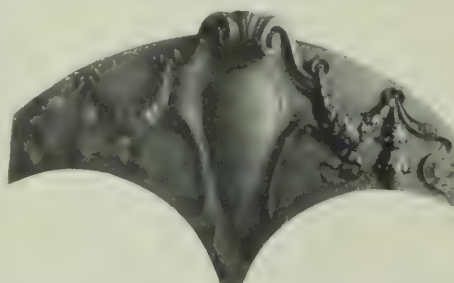
The Twin City Brick Company of St. Paul has been awarded the contract to furnish the facing brick for the new Minnesota State Prison Buildings at Stillwater, Minn., Clarence H. Johnston, architect. Some 2,500,000 dark pink mottled bricks will be used.

Sayre & Fisher Co. will supply the bricks for the new addition to the Astor Hotel, also for the new office building to be erected at 43d, 44th streets and Broadway for the Astor Estate. Their "Home Club" bricks were used in the new apartment at the corner of 64th Street and Madison Avenue.

The South Amboy Terra Cotta Company will furnish the terra cotta for the following buildings: Lotus Club, New York, Donn Barber, architect; apartment hotel,



DETAIL BY CONKLING-ARMSTRONG TERRA COTTA CO.
Parkinson & Bergstrom, Architects.



DETAIL BY NEW JERSEY TERRA COTTA CO.
William E. Mowbray, Architect.

98th Street and Riverside Drive, William L. Rouse, architect; addition to Vassar College group, Ewing & Chapell, architects; Chemistry Building, Rutgers College, Hill, Stout & Williamson, architects; office building, Glenn Falls, N. Y., Marcus T. Reynolds, architect; State Armory, Hartford, Benj. Wistar Morris, architect; Church of the Assumption, Brooklyn,

F. J. Berlenbach, architect. Much of this work will be in polychrome terra cotta.

NEW BOOKS.

THE BUILDING MECHANICS' READY REFERENCE; Cement Workers' and Plasterers' Edition. By H. G. Richey, Superintendent of Construction United States Public Building. 16mo, vi+458 pages. 193 figures. New York, John Wiley & Sons. Morocco, \$1.50 net.

HOUSE PAINTING; Glazing, Paper Hanging and Whitewashing. A book for the householder. By Alvah Horton Sabin, M.S., author of "Technology of Paint and Varnish." 12mo, v+121 pages. New York, John Wiley & Sons. Cloth, \$1.00.

ACADEMY ARCHITECTURE, Volume 33, edited by Alex. Koch, Architect, containing a selection of the most prominent Architectural Drawings hung at the exhibitions of the Royal Academy, London, and the Royal Glasgow Institute of the Fine Arts, Glasgow, Sculptures, American architecture. A review of interesting Architectural subjects carried out or designed during the last few years in England and abroad. M. A. Venson, agent Caxton Building, Cleveland. Price, \$1.75.

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EAST END, CHURCH OF ST. GEREON, COLOGNE, GERMANY.

THE BRICKBUILDER

VOL. 17 NO. 10

DEVOTED TO THE INTERESTS OF ARCHITECTURE IN MATERIALS OF CLAY

OCTOBER 1908

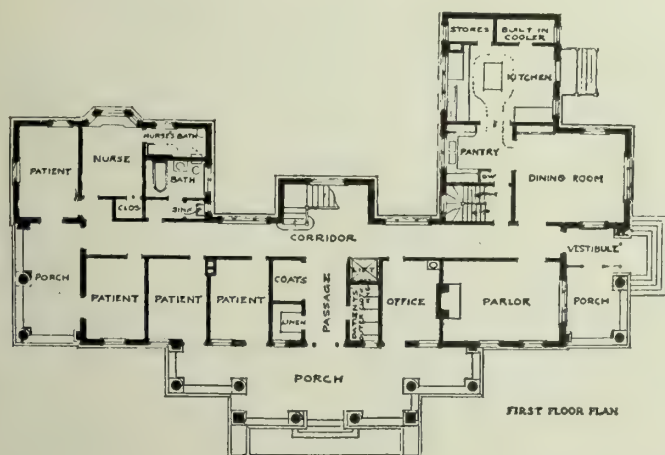
Sanatoria for Consumptives.

THE WORK OF SCOPES & FEUSTMANN.

THE tuberculosis sanatorium and hospital work here illustrated was developed by Scopes & Feustmann, primarily through professional association with Dr. E. L. Trudeau's Adirondack Cottage Sanatorium at Saranac Lake, New York, and from the effort on the part of this firm to design a proper type for a cottage sanatorium.

A circumstance of great importance in influencing the planning of sanatoria and tuberculosis hospitals lies in the fact that about eight or nine years ago, physicians treating tubercular patients in sanatoriums and health

In this cottage, beds can be wheeled directly from the bedrooms to the porches. A still further advance was made in cottages, K and L, where direct light was obtained for sitting rooms and bath rooms, the shading of the south bedrooms by the porch roof being avoided by making the porch here a mere passage for connecting the sitting and sleeping porches. Another advance in the later type of cottage over the old one was made by providing windows in the clothes closets. A change in design was made in type M, in order to reduce the cost of these cottages, which had been gradually increasing each



PLANS, RECEPTION HOSPITAL, SARANAC LAKE, N. Y.

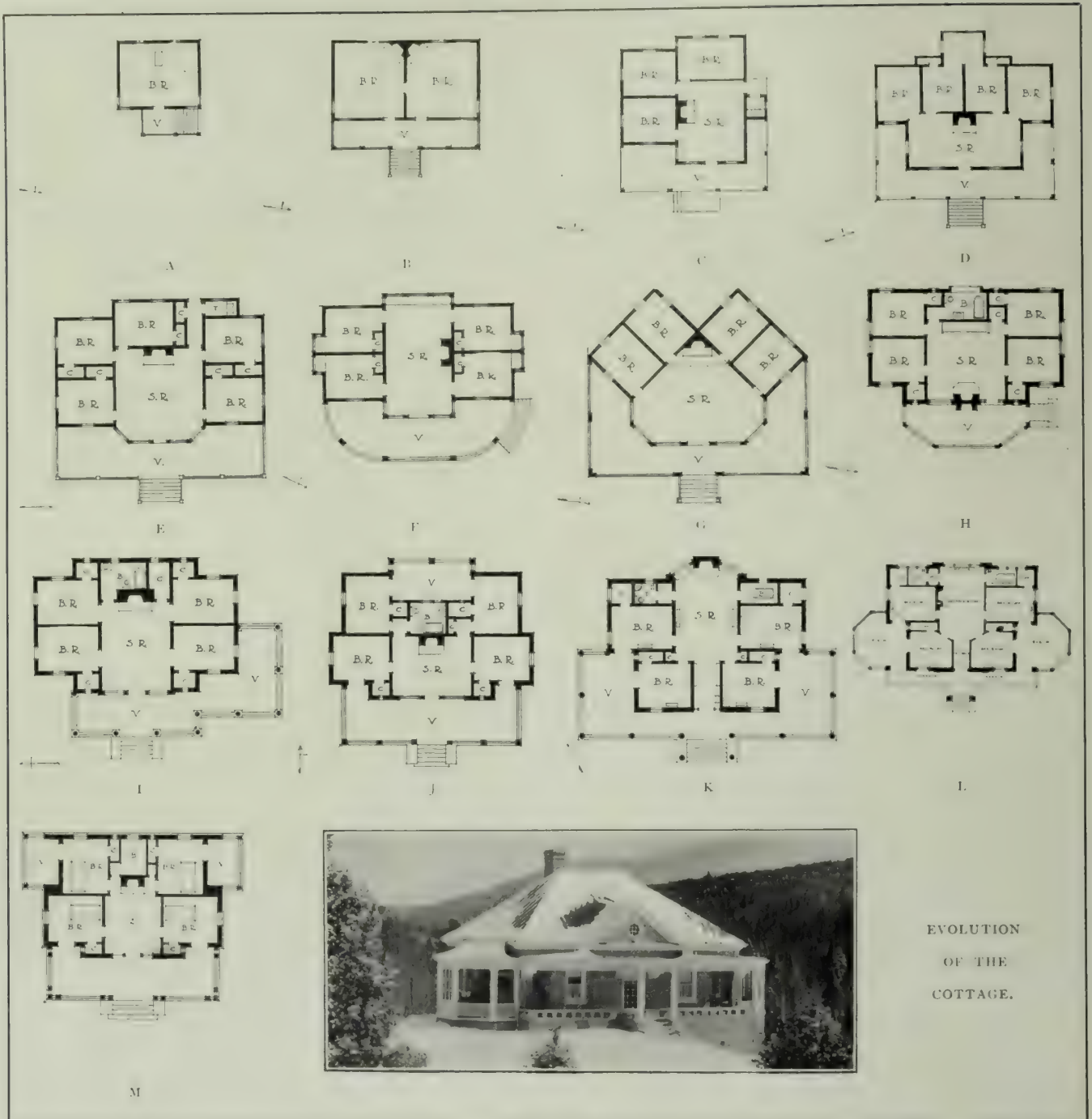
resorts began more generally to advocate out-door sleeping and, particularly in acute cases, rest out of doors in bed during the entire day. Prior to that time, patients confined to their beds were compelled to remain indoors just at the time when the need of the tonic effect of out-door air was greatest.

The complete development of the cottage type, from the inception of the Adirondack Cottage Sanatorium to the present time, can be seen in the "Evolution of the Cottage." (See page 224.) The first attempt to adapt the plan of the cottage to the requirements of the treatment now advocated (i.e., that no time be spent by the patient indoors except for meals) was made in the cottage plan I, in which the doors to bedrooms and sitting rooms were made wide enough to wheel a bed through to the porch. The inconvenience of this method has been overcome in cottage J, designed by the late W. L. Coulter.

year. A more compact plan has been evolved, and the transoms over the main porch provide direct light for the sitting room. Of the cottages shown in the "Evolution of the Cottage," plans I, K, L, and M were designed by Scopes & Feustmann.

Reception Hospital at Saranac Lake. While the hospital is a purely local institution, designed especially to meet peculiar requirements, it has, nevertheless, certain features which would naturally commend themselves to those who have under consideration the erection of small hospitals for the treatment of tuberculosis, and more especially may this hospital serve as something of a model when it is known that its plans have stood the test of competition, and that they have had the personal supervision of those who have been pioneers in this country in the open-air treatment of pulmonary tuberculosis.

The site is admirably adapted for the building, being



EVOLUTION
OF THE
COTTAGE.

sixty feet above Saranac Lake and commanding a good view of the surrounding country.

One of the chief objects of this design was to introduce as much sunlight as possible into the patients' rooms and still retain good ample porch area.

Rooms ten feet by thirteen feet six inches have been provided for twelve acute and eight convalescing patients. The twelve rooms for acute cases, which are confined to the first and second floors, open directly on to spacious, covered porches (one hundred square feet being allowed each patient). Each room has two windows, one of which is wide enough to admit a bed being wheeled through. These windows give good ventilation, together with ample sunlight, which is one of the chief points in designing a building of this nature.

Eight rooms on the third floor are used for convalescing patients who use the lower porches for their outdoor cure.

The plumbing is separated from all corridors by two doors. The entrance is well placed, giving all patients the privacy which is desired. No provision is made for internes' or doctors' quarters, because the hospital is visited daily by Saranac Lake physicians.

Lean-tos and Shacks. To Dr. Herbert M. King, physician-in-chief at the Loomis Sanatorium, Liberty, N. Y., belongs the credit of evolving from the suggestion of an Adirondack lean-to, a type of structure admirably adapted to the housing of incipient cases of tuberculosis of the poorer classes. These were first used at the charitable Annex connected with the Loomis Sana-



GENERAL VIEW OF FRONT.



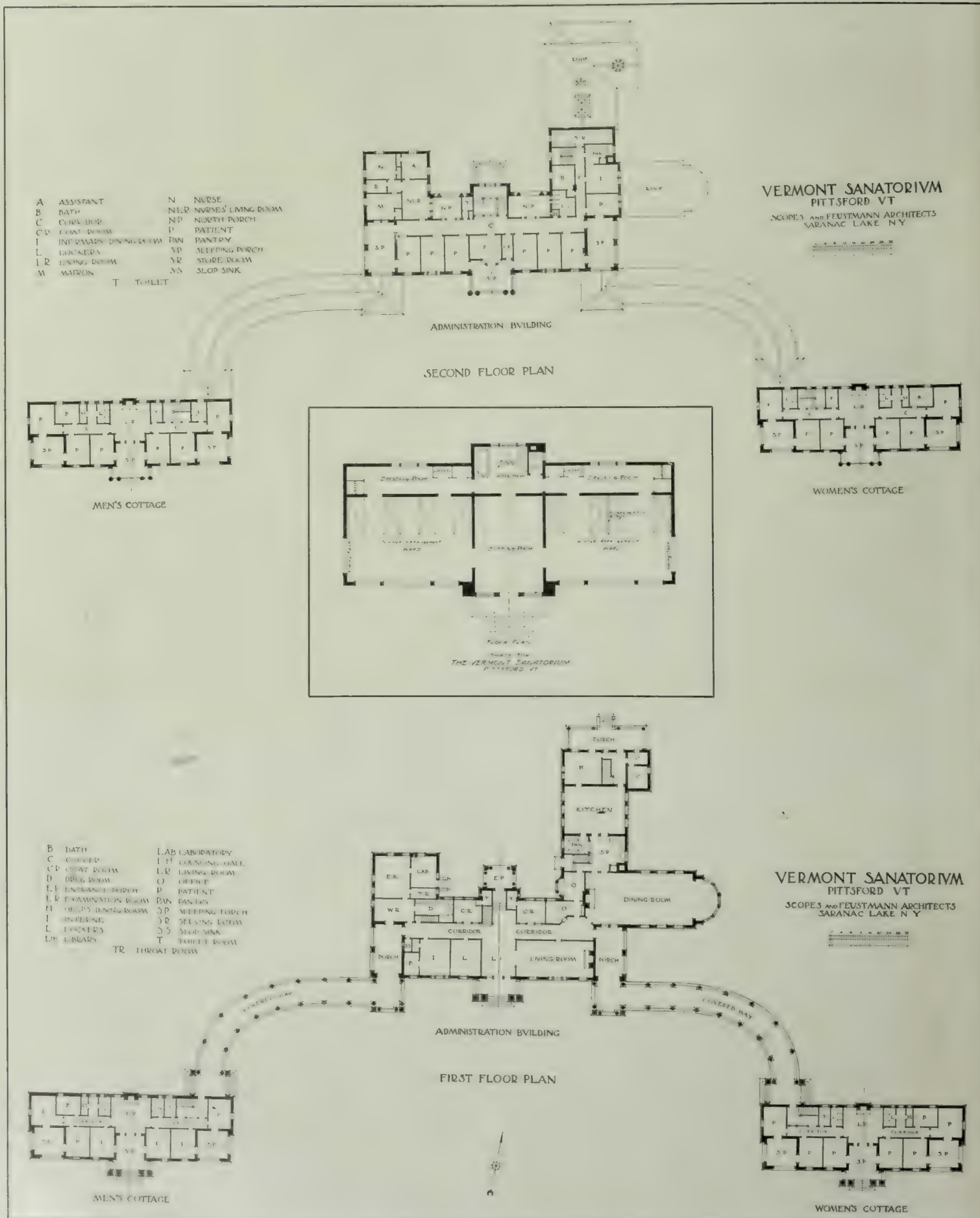
WEST COTTAGE.



ADMINISTRATION BUILDING.



EAST VIEW, SHOWING DINING ROOMS AND SERVICE WINGS, VERMONT SANATORIUM, PITTSFORD, VT.





COVERED WAY CONNECTING ADMINISTRATION BUILDING AND COTTAGES.



A COTTAGE PORCH.



A CORNER OF COTTAGE PORCH.

VERMONT SANATORIUM, PITTSFORD, VT.



MAIN LIVING ROOM.



DINING ROOM.



CORRIDOR, ADMINISTRATION BUILDING.



PATIENTS ROOM IN COTTAGE.

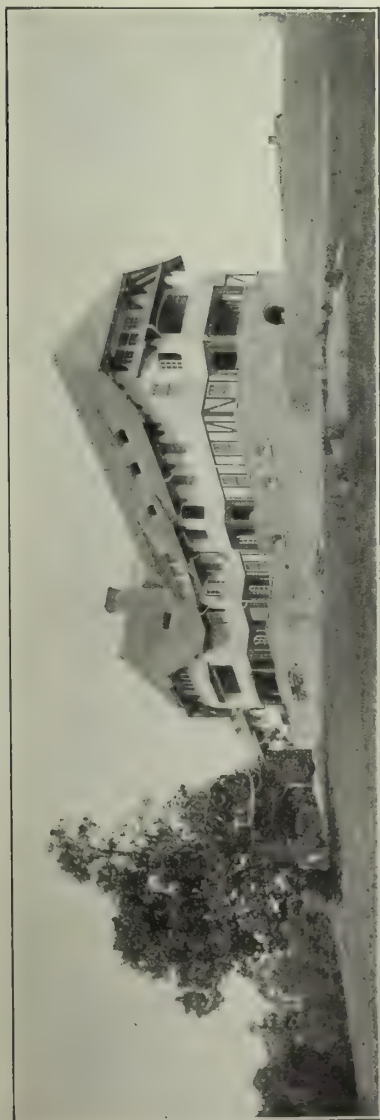


NURSES SITTING ROOM.

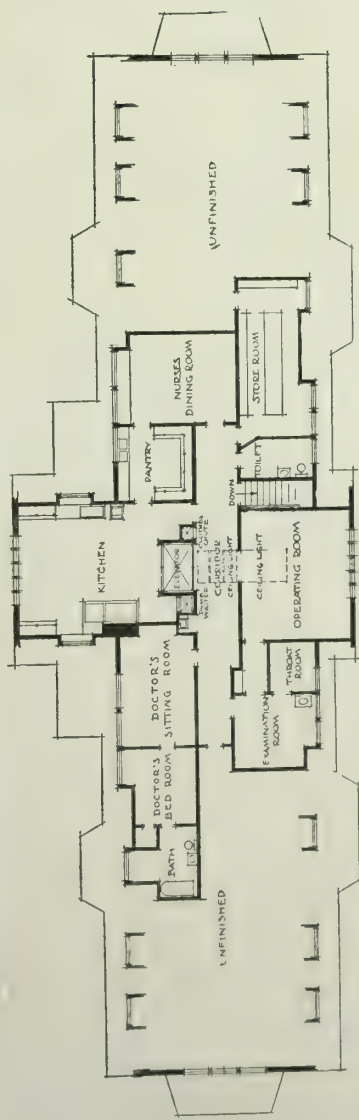


MAIN HALLWAY, ADMINISTRATION BUILDING.

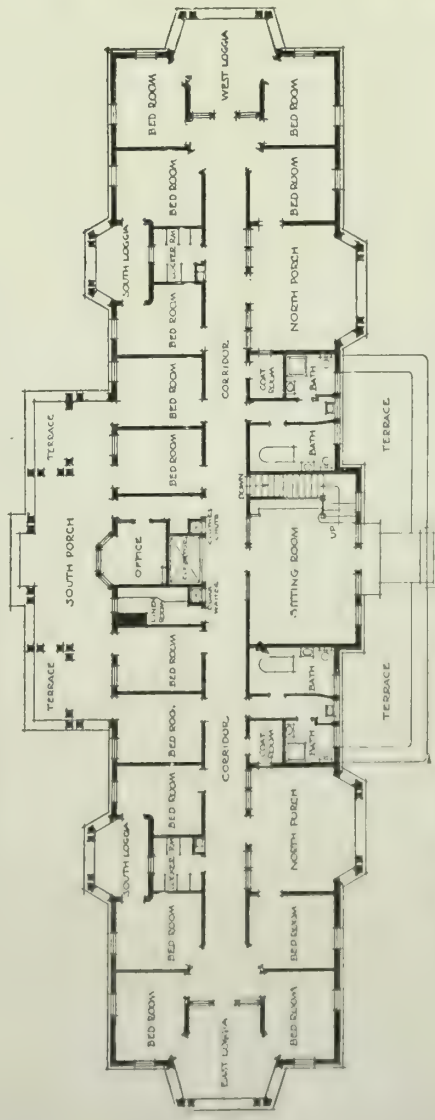
VERMONT SANATORIUM, PITTSFORD, VT.



MARY LEWIS RECEPTION HOSPITAL, LOOMIS SANATORIUM, LIBERTY, N. Y.



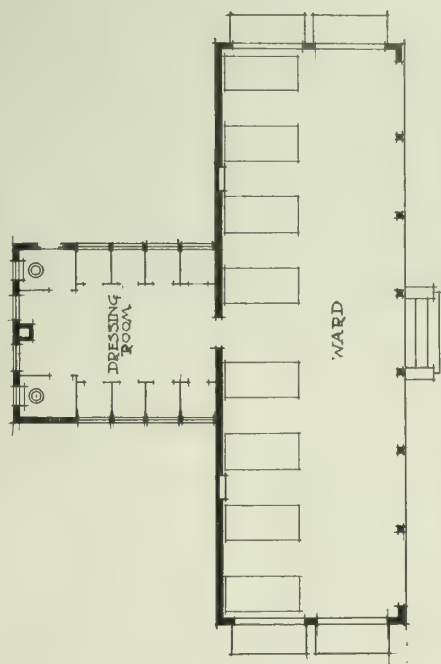
THIRD FLOOR PLAN, MARY LEWIS RECEPTION HOSPITAL.



FIRST AND SECOND FLOOR PLANS, MARY LEWIS RECEPTION HOSPITAL.



LEAN-TO, ANNEX, LOOMIS SANATORIUM.



PLAN, LEAN-TO, ANNEX, LOOMIS SANATORIUM.



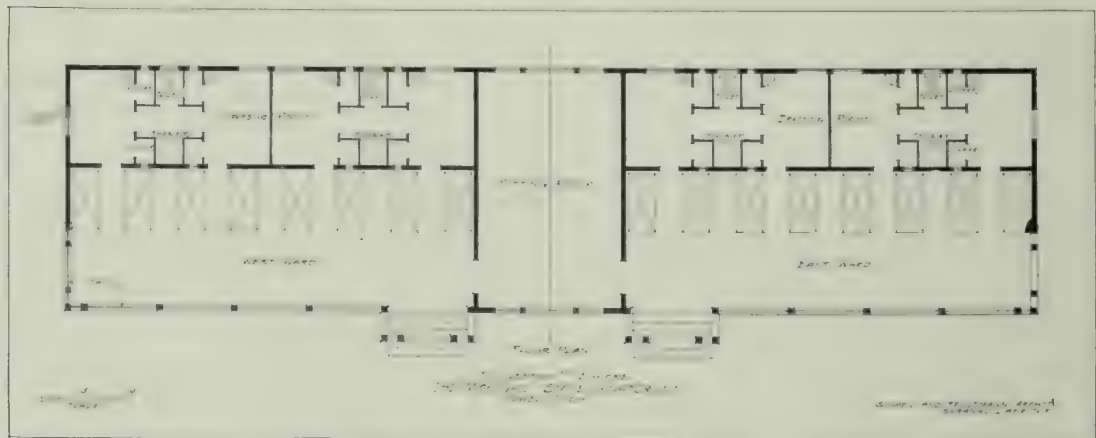
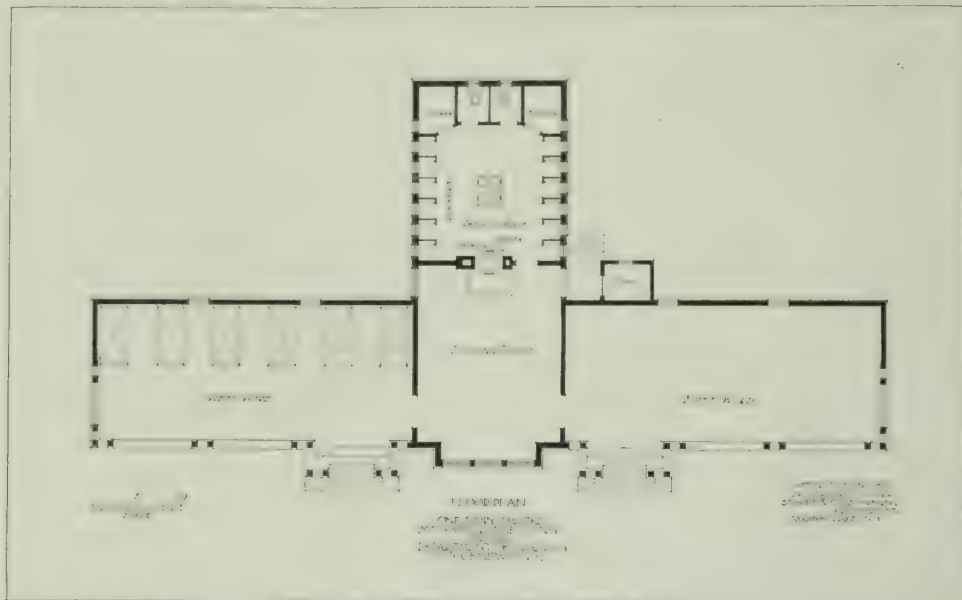
INTERIOR, LEAN-TO, ANNEX, LOOMIS SANATORIUM.



ONE STORY SHACK FOR NEW YORK DEPARTMENT OF HEALTH, SARANAC LAKE, N. Y.



TWO STORY SHACK FOR NEW YORK DEPARTMENT OF HEALTH, SARANAC LAKE, N. Y.



torium. This method of housing for a portion of their patients has been adopted by sanatoriums and tuberculosis hospitals throughout the country, and in one instance, near Baltimore, Md., a complete sanatorium has been built in which the patients are housed in shacks. The use of shacks only in a sanatorium is inadvisable in a cold climate, and it is doubtful whether this system, without further accommodations in substantial and heated buildings, should be adopted in any but the mildest climate. However, the possibilities of this scheme of housing for low cost sanatoria may be seen from the accompanying illustrations of shack and lean-to types.

The Mary Lewis Reception Hospital, connected with the Loomis Sanatorium, provides treatment for twenty-eight advanced or acute cases of tuberculosis in separate rooms. This building was designed for a well-to-do class of patients, and every care and comfort required by a tubercular invalid may be obtained here. There are a total of fourteen porches for the twenty-eight patients. These porches are so arranged as to afford any degree of privacy, inasmuch as a patient can be wheeled in his bed to any porch on the building. As in the Reception Hospital at Saranac Lake, the same method of recessing the south porch has been adopted to obtain ample light in such patients' rooms as face on this porch. Light and ventilation for all other rooms is obtained by separating the porches. Sufficient north porch space has been provided for use in summer and for isolating patients.

In the third story are located the kitchen and pantry, internes' quarters, examination and throat treatment rooms, and a small operating room for cases of surgical tuberculosis. There is no patients' dining room, as all patients in this building are served in their rooms, and when well enough to attend meals are transferred to the main sanatorium.

The building is lighted by electricity, has a vacuum steam heating system and direct radiation, an hydraulic elevator, cold storage plant in basement, complete system of call bells from rooms and porches, and local telephones in all parts of the building.

The Vermont Sanatorium. The trustees of the Vermont Sanatorium were familiar with Saranac methods and desired a plant that would make it possible to adopt in every way the form of treatment advocated by Drs. Trudeau, Baldwin, Brown, Kinghorn, Trembley, and others of the Saranac school. It was required to provide accommodations for sixty to seventy-five patients with present housing for thirty patients. All of these were to be incipient cases of the working class, who could afford to pay about \$7.00 per week for complete treatment.

The sanatorium consists of an administration building, to which are connected the men's and women's cottages, by means of covered ways protected on the north side by storm sash. The main building contains medical and business administration, domestic arrangements and dining accommodations, small library and general living rooms, quarters for internes, and separate coat rooms for men and women.

The second floor is mainly given over to the uses of an infirmary, as it is necessary in any institution for incipient tuberculosis to provide accommodations for

twelve to fifteen per cent acute cases. In the second story over the medical wing is located the quarters for the women staff. As this staff is usually composed in part of ex-patients, a special porch is provided for their use. There is also a patients' isolating porch on this floor. The infirmary patients' dining room and diet pantry, bath and toilet rooms, linen rooms and maids' closet, and locker room for patients' outer clothing make up the balance of the second story.

In further reference to the lockers, it may be of interest to know that for obvious reasons it is not considered hygienic to place patients' clothing, except clean linen, in closets off their rooms, unless a window can be provided for ventilating such closets. This is usually expensive and complicates planning. The lockers are found to be perfectly satisfactory from the point of view of the patient and gives the authorities better supervision over the clothing.

In the dining and living rooms, where a large number of patients may congregate, special ventilation is provided, but in the balance of the institution only direct heating and natural ventilation is used.

Each cottage contains accommodations for twelve patients in two stories. Each two patients have their own porch directly connecting with their bedrooms. The locker system for patients' clothing is also used in the cottages.

It is proposed to enlarge the institution to its full capacity (seventy to seventy-five patients) by the addition of shacks of the types adopted by the Department of Health, New York City, and the Michigan State Sanatorium. It is the intention of the management to graduate patients from the infirmary in the administration building to the cottages, and from these cottages to the shacks, as their improved condition shall warrant less supervision and attention.

Medical and Observation Pavilion. Adirondack Cottage Sanatorium. The most recent work of Scopes & Fuestmann combines under one roof, for economical reasons, what is now considered to be two essential units in a cottage sanatorium for the treatment of tuberculosis, namely, reception and observation quarters and medical administration. Newly arrived patients are placed in the observation quarters, located on the first floor, for a period of ten days or two weeks, under the close supervision of a trained nurse, and allowed no latitude as to their own movements until their exact physical condition is ascertained. Here the patient receives first lessons in self-restraint, and is taught at first hand what will be required of him if he would regain health. After this period of observation, the patient is housed in one of the cottages of the sanatorium, at such distance from the administration building (i.e., dining hall, etc.) as is best suited to his physical condition. The medical administration, second floor, contains a waiting room, examination rooms, drug room, clinical laboratory, X-ray room, library, statistician's room, and private working room for the physician-in-chief.

The problem of sanatoria for consumptives presents a very broad field for further study, and we may look for some interesting solutions as the architectural profession becomes better acquainted with this special branch of hospital designing.

The American Theater—XI.

STAGE ACCESSORIES

BY CLARENCE H. BLACKALL

IN the days of the stock theater company a great deal of scenery had to be carried all the time. In these days of traveling companies a theater is very apt to have no scenery of its own at all, each company bringing everything it requires even down to the most minute properties. Consequently the modern theater has little need for a scene room and such a feature can be dispensed with entirely in emergency, though it is well to provide a space 16 by 20 or 30 feet and not less than twenty-five feet in height, which will be termed a scene room and will be used for all sorts of purposes. Then there should be on the stage level a property room wherein are kept the miscellaneous objects which fit out the stage dressing. This should be at least 18 by 25 feet. There is required also a stage manager's room which serves as a species of office and is best arranged in close proximity to the switchboard on the prompt side. For bringing the scenery into the theater an opening is provided in the rear wall, preferably on one side, being eight feet wide and not less than twenty-five feet high. This door should be in several sections to slide up. If the stage floor is not on the level of the adjoining street there should be a large lift strong enough to take up three tons if necessary and finishing flush with the stage floor. This is for the introduction of steam engines, horses, etc. In the space under the stage there should be arranged the locker rooms for the stage men, lavatories for their use, and a waiting room which they can use when not employed on the stage, and there should also be a store room for the electricians' supplies, fitted with work bench and lockers. No permanent obstruction can be placed under the movable portion of stage, as it is never safe to say where a trap may not be wanted.

"Green Room" is a term applied to a waiting room reserved specially for the actors and actresses. In the old theaters and to-day in European ones this is quite a feature. Few American theater managers will give the space required for this. It is, however, a very desirable function and one which should be included where practicable.

Dressing rooms should be entirely away from the stage. A very admirable device which has been adopted abroad is to enclose the stage with brick walls on all sides, outside of which runs on three sides a broad corridor serving the encircling dressing rooms, access being had to the stage through a single door on each side near the curtain line. This, again, means an arrangement in plan which takes up a great deal of room and costs money. It is, however, usual to provide at least two dressing rooms on the stage level, each fitted with separate toilet and a closet and used exclusively by the stars. Then on the level either immediately above or below the stage there should be two rooms for the chorus or the supernumeraries. Each room is fitted with a long bench on one side for make-up and with rows of wash basins in the center, preferably of enameled iron. Individual dressing rooms are usually arranged in tiers at the sides of the stage and above the

stage level. They should be about eight feet square, each room being well ventilated but not necessarily receiving daylight, and each room containing a ledge across one side for make-up and an enameled iron basin with hot and cold water. The dressing rooms are really the only portion of the stage in which gas is required, the gas being used for heating the grease paint. For a theater intending to accommodate average combination shows there should be not less than twenty individual dressing rooms and the two supers' rooms should each be not less than 15 by 35 feet. This number of rooms could take care of a company numbering as high as two hundred. Some theaters like the New Amsterdam, New York, are able to take care of over six hundred actors. A well equipped theater should also have two rooms used for wardrobes, each room being not less than 13 by 30 feet. It is usual also to arrange for a stage carpenter's room somewhere about the building. It can usually be tucked in almost any corner not otherwise available and is sometimes even put up on the side of the rigging loft. It should be at least twenty-five feet long and not less than twenty-five feet high, so that scenes can be stood up.

There is usually but one doorway between the stage and the auditorium, preferably on the prompt side. This is furnished with fireproof door and is supposed to be used only by the manager coming from the front of the house. The stage entrance is best placed on the rear and if the configuration of the land permits it is better to have the stage entrance through the basement so as to check any possibility of drafts from the door to the stage floor. At the doorway there should be provided a small closet or recess for the doorkeeper, fitted with letter box and key rack. Close to the stage door there should be an elevator large enough to take up three trunks at once.

In planning a stage it is a good idea to bear in mind that spectacular horse racing is not uncommonly represented and to arrange so that a team can get a start either in a side street or in a property room and dash at full speed across the stage, either running out through a door into the street again or having plenty of space to bring up in the wings.

There are a few American theaters which are provided with a room to serve as a library, a place for study, and where can be gathered the photographs, play bills, posters, etc., which in time become so interesting and valuable, but the unfortunate disappearance of the stock company and the migratory character of most of our attractions hardly encourage any provision for such a room.

In designing the finish and fixtures for the portion of a theater behind the curtain line, care must be taken to have everything of the most simple, durable, unbreakable character. If a thing can be defaced or ruined it is well nigh hopeless to expect it not to be. The dressing room floors are best covered with battle-ship linoleum, glued to the constructive concrete filling. In the corridors this would not answer, as both linoleum and con-

crete would in a single season be ruined by dragging trunks and boxes across them. Rock maple flooring one and three eighths inches thick pasted to the constructive floors will give the best service. The stairs if of concrete should have a granolithic surface and the edges of the treads protected by a steel nosing and a strip of safety tread. Sanitary bases of tile or cement should be used everywhere. All passages, also all dressing rooms if the money holds out, should be sheathed at least three feet six inches high. Stairs should be made with wide landings, remembering that cumbersome trunks and properties will be carelessly carried over them daily. The wall plastering is best of Portland cement, with all corners rounded on a radius of not less than three inches. The doors should be built without panels, flush on both sides, like hospital doors, and glazing for all doors and windows should be with wire glass. Moldings are best omitted entirely, using perfectly plain wood casings of the narrowest possible dimensions. All doorways through which trunks are carried in any number should be protected by steel angles on the edges. Walls and ceilings of corridors and dressing rooms should be enameled, and the woodwork varnished and left bright, neither shellac nor paint being most suitable for this part of a theater.

The worst kind of theater fire is one which starts on the stage during a performance and spreads like a flash to the mass of suspended, highly inflammable scenery and rigging. In such a case the lives of the audience and of the actors may depend upon the coolness of the men in the fly galleries, and whether they have the nerve to stand by till the asbestos curtain is lowered and the blazing scenery dropped to the stage and smothered. It is therefore highly important that there should be an exterior fire escape for the sole benefit of the fly men, so easy of access that they can fight the fire so long as there is any hope and be sure of getting out alive.

A thoroughly well equipped theater should have a complete dust removing plant extended to all parts of the house with outlets and standpipes so arranged that with a fifty foot hose all parts of all floors and walls can be reached. Especially should such a system be put in for the rigging loft, even if it is omitted everywhere else. The accumulation of dust on a gridiron and the scenery battens is something which must be seen to be appreciated, and which can be removed without damage to the scenery only by the pneumatic process.

There should be provided a billroom about 12 by 24

feet where can be stored the posters, bills, paste pots, and various publicity adjuncts. This should be easy of access from a rear street or passage, with separate outside door.

The planning of a large theater, while a specialized problem, is one which can seldom be solved twice in the same way. Only in the most general manner can the requirements be standardized. The very charm of the problem lies in the great diversity of possible treatments, and although it is preeminently an expert's work in its practical details, such as sight lines, stage construction, and ventilation, once these points are rightly established the rest is simply a matter of good, bad, or indifferent architectural design. Most of the American theaters are indifferent. Some are so frankly bad as to be really quite hopeful as indicating only misdirected energy, while there is a small number, larger each year, of good, well-designed theaters, thoroughly worthy of study, notwithstanding the commercial limitations. It is not a problem which need be unreservedly turned over to a specialist. It is the writer's opinion that a specialist cannot be a good architect in the complete sense of the term, and that in proportion as one narrows the scope of his practise to a single class or kind of building, so is he sure to narrow his ability to give even that problem the best architectural solution. The architecture of a theater should above all things be imaginative, and how can a specialist let his imagination have free play? The more the theater problem is studied and solved by competent architects as a part of general professional practise, the higher will be the standard of art in our theaters, and the less likely will it be that their design will be delivered to the mercy of a graduated stage carpenter or scene builder. Garnier never was a theater expert, but he managed to make the rest of the world sit up and think; while there are several architects who do hardly anything but theaters, who yearly grow less fit. The theater is indeed a complicated problem, which unless started just right is so altogether wrong that the best architecture in the world can only make its failure more lamentable; but its complications are not beyond the comprehension of any well equipped architect who is willing to take the pains to inform himself, and these articles have been written in the hope of making a little more easy the practical study and elucidation of this most fascinating problem.

THE END.

The New Brooklyn Academy of Music

HERTS & TALLANT, ARCHITECTS

THE old Academy of Music, Brooklyn, was opened to the public in 1859, and destroyed by fire in November, 1903. It was the center of the civic life of the city and served as a rallying point for many of the great movements that have had such vital import in the progress of American civilization.

Soon after the destruction of the old building, a committee of one hundred was organized, a corporation was formed, public subscriptions were invited, and within a short time the site was purchased.

A competition for the selection of an architect was decided upon and Professor Laird of the University of Pennsylvania was engaged to serve as expert adviser to the committee in preparing the program and Mr. Carrere and Mr. Mead of the firms of Carrere & Hastings and McKim, Mead & White respectively, consented to act together with the advisor upon a jury of award which was to pass upon the designs and plans submitted. Ten firms of architects were invited to enter a paid competition. A preliminary program was prepared by the com-



VIEW TOWARDS STAGE, OPERA HOUSE.
(Proscenium Arch had not been decorated at time photograph was taken.)



VIEW FROM STAGE, OPERA HOUSE.
BROOKLYN ACADEMY OF MUSIC, BROOKLYN, N. Y.

mittee and their advisors, and submitted to the competing architects who were invited to attend a meeting where the program was discussed in full, after which discussion and by consent of the competing architects a final program was drawn up. This program, complete and accurate in every detail, can well serve as a model for future competitions. In the three years required to execute the work there have been practically no modifications either in the plans or specifications.

Of the ten sets of drawings submitted, those by Herts & Tallant were judged the best, and they were selected as architects for the building.

Originally the façade was designed for marble but it was afterwards redesigned to be executed in light color and brick and polychrome terra cotta. The exquisite harmony of the color scheme is lost in the illustrations, but the detail which is the best spirit of the Italian Renaissance is easily apparent.

The building provides for a variety of functions: educational, musical, dramatic, and social, so related that they form a single organism, whose parts may be distinct or operated together. The plan is divided into four principal parts:

- The Foyer and Ball Room
- Opera House
- Concert Hall
- The Offices and Lecture Halls of the
Brooklyn Institute of Arts and Sciences

Each of these divisions is, however, designed to serve two or more purposes.

The building has a seating capacity of five thousand persons divided as follows:

Opera House	2200
Concert Hall	1400
Banquet Hall	600
Large Institute Lecture Hall	400
Four Lecture Halls	each 100

The opera house will serve not only for grand opera, but for large theatrical productions, oratorio, and symphony concerts, also for political and educational meetings of every description. With this in view every available foot has been utilized, and every care taken in the arrangement for compactness of seating and excellence of sight lines.



DETAIL OF CORNICE, BROOKLYN ACADEMY OF MUSIC.

While the Paris Opera House and other buildings of its type have a larger seating capacity than the Brooklyn Academy of Music, it has long since been demonstrated that all seatings over three thousand are practically worthless, and so here the opera house has been laid out on the lines of the standard American theater.

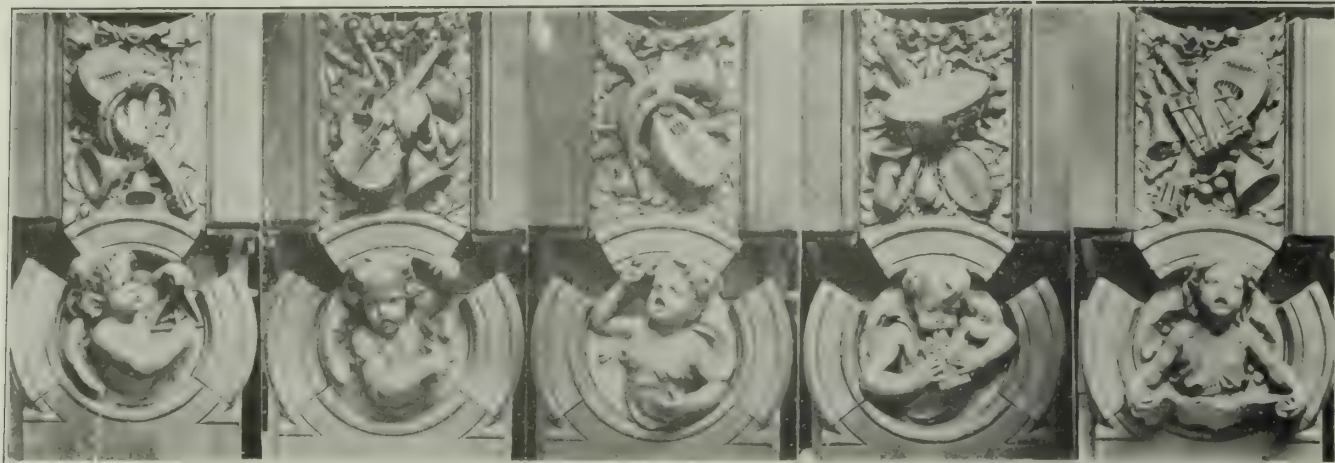
The concert hall is planned primarily for chamber music and public lectures, and contains the Frothingham organ which is one of the premier instruments in the United States, a gift to the institution by the Frothingham family in memory of their father.

The foyer extends along the entire Lafayette avenue front of the building and has an area of five thousand square feet. It has special carriage entrances at both ends. The ball room or banquet hall which is accessible from both auditoriums is forty feet wide and one hundred and eighty feet long, and is probably the most characteristic and distinctive feature of the building. Connected with the banquet hall, beneath the music gallery, at the west end, are the kitchens, service, and store rooms arranged in tiers of three stories.

Provision is made for the executive offices of the Brooklyn Institute of Arts and Sciences, lecture halls, rooms for experiments and demonstrations in electricity, chemistry, physics, photography, and studios for classes in design and life. Thus is housed at once halls for concerts, opera, drama, public lectures and meetings, and the principal educational organizations of the Borough of Brooklyn.

It will be seen that the separation of the two auditoriums is complete, and that each distinctive function of the building is thoroughly isolated. The building is surrounded by a series of open air fire exits and fire galleries, which open directly on the adjacent streets.

To William DeLeftwich Dodge was entrusted the



EXTERIOR DETAILS EXECUTED IN ARCHITECTURAL TERRA COTTA, BROOKLYN ACADEMY OF MUSIC.

entire mural decoration of the building, and here especially he has shown himself at his best.

The mechanical equipment of the building both as regards the stage and the heating and ventilating systems is laid out along the same lines as the New Lyceum and Amsterdam theaters by the same architects, but shows a still further development in the matter of simplicity and expediency. Particularly noticeable in connection with the stage is the complete absence of the old system of pin rail support for the suspended scenery.

The construction of the gridiron shows the final step in the modern revolution whereby this portion of the building is entirely constructed of steel; not only the floor but also the sheaves and lines being of this material.

The building is heated throughout by the indirect system. The air is brought in from a central court where it is free from dust to an aperture two hundred feet square, passed through removable cheese cloth screens forty-six times this area and forced over steam coils on a thermostatic control by means of four large comb fans, into specially constructed plenum chambers. From these dampers the air enters the main auditoriums through mushroom rooms under each of the seats, constructed with a

damper in each, which can be operated from below so that the floor air at any special point can be altered without interrupting the audience. The foul air is exhausted from the upper part of the auditoriums by a corresponding system of fans, and discharged from a fan house at the front of the building.

The electric lighting system shows special study in regard to all the minor details. The ordinary exit lights are in this building replaced by illuminated signs supplied by special batteries so designed as to keep these lights burning for fifteen minutes after all other lights in the house have been extinguished.

Special designs have been made for the hardware on the exit doors whereby the simple pressing of the audience within serves to draw the bolts of all the doors in the auditoriums so that it becomes impossible in case of panic for the audience to amass at any one of these exits.

The exterior of the building presents an unusually interesting example of polychromatic architecture. The charm of the color scheme suggests an American modernization of the art of medieval Italy and rejuvenation of the ideas of Lucca Della Robbia.

The basic and body tone is of cream in two shades—light and dark, the lighter tones



DETAIL OF ENTRANCE DOORS, BROOKLYN ACADEMY OF MUSIC.



VIEW OF BALL ROOM.



VIEW OF GRAND LOBBY.

BROOKLYN ACADEMY OF MUSIC, BROOKLYN, N. Y.

being used below and becoming heavier and richer as they work up, encircling in green and yellow the five majestic windows, topped by the splendid cornice.

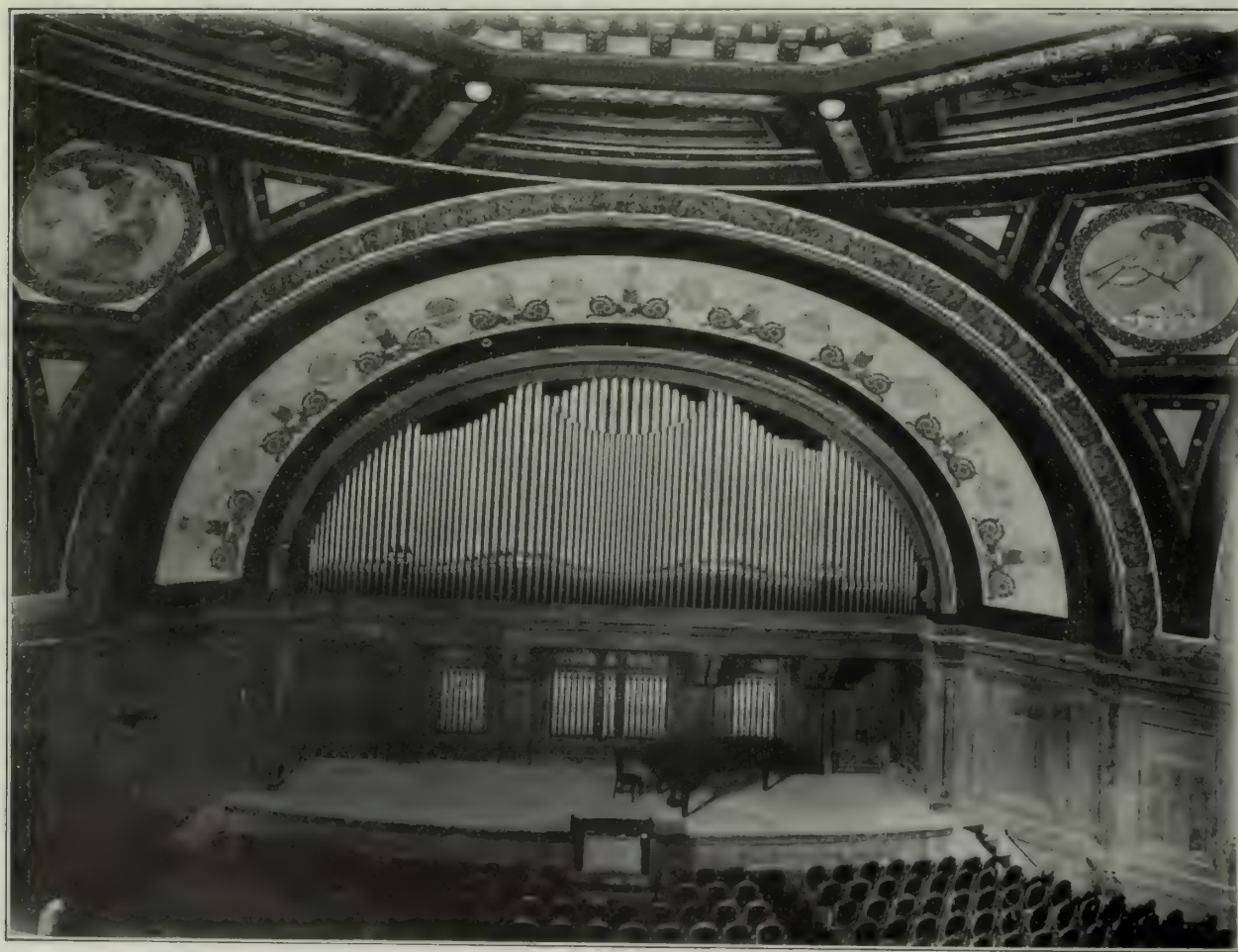
The ornamentation of the large entrance doors is of cream and yellow; the course above the doors is in green and burnt sienna. In the cornice the various commingled colors of blue, yellow, red, and sienna produce a warm brown color effect.

Set in the cornice are twenty-two full sized lions' heads of life-like coloring and with tongues of red. In the background and between these lions' heads are distinctive panels of red and blue with sienna shading. Over each of the large doors and on each side

colors on plaster casts made from the molds of the terra cotta, and in this way the architects and manufacturers worked together to obtain the special shades needed for the desired effects. Sand-blasting was applied to special parts of the finished work so as to obtain the proper relation between such parts of the surface on which it was desired to retain the glaze and the others on which a dull finish was more effective.

This work has now stood for about a year and shows little or no signs of fading. Should there be any changes in the colors or should accumulated dirt mar the detail it will be a simple matter to retone the whole work.

As a matter of interest it should be stated that the



VIEW TOWARDS STAGE, CONCERT HALL, BROOKLYN ACADEMY OF MUSIC.

thereof are cherub figures alternating in arrangement with panels of ancient musical instruments. These are in cream relief against a yellow background. In the lower bands of the cornice are sienna toned flowers; in another section of the cornice the ornament is yellow with sienna background.

The broad strip of ornament which encircles each window shows beauty in design and color scheme and great delicacy in the modeling of its relief. This comprises a rich tone of green against which are placed cream white and yellow flowers and buds.

Unusual care was taken in the execution of this work to insure the best possible results, both artistically and practically. The color scheme was worked out in water

architectural terra cotta was furnished by the Atlantic Terra Cotta Company, and that the architects acknowledge their indebtedness to them for an enthusiastic cooperation.

The lettering in the brickwork was obtained by burning special tiles of brick-clay, upon each one of which a raised letter had been modeled. Owing to the fact that the letters had to be spaced at different distances, one from another in every individual case, the architects were obliged to lay out a full size detail of the entire lettering and from this detail the exact sizes of the tiles were determined; there were no two tiles of the same size. This work was executed by Sayre & Fisher Company, and is, as far as known, unique in execution.

Editorial Comment and Miscellany.

THE HOSPITAL BUILDING COMPETITION.

ONE of the most charming bits of secular architecture in Europe is the little hospital of the Ceppo at Pistoja. It was designed at a period when the Italian Renaissance was at its best, when ideals were high and art was simple and fresh in its motifs; when choice of materials, adaptation of the work of the craftsman to the artistic thought and a keen sense of the relative fitness of things were all combined to produce those exquisite masterpieces which have ever since been the joy of the connoisseur.

It is so well proportioned as a design, the details are so appropriately considered both as decoration in mass and in their relative values, and above all the materials are used so knowingly that it has ranked for centuries as a classic example of the proper use of burnt clay.

In selecting the problem for THE BRICKBUILDER competition we had this Pistoja Hospital in mind. We do not wish to see medieval conditions merely assumed and unintelligently copied, but there is certainly a spirit in this building which seems singularly appropriate to hospital design, and no better standard could be suggested for the use of terra cotta. So we have asked for designs for a hospital in burnt clay, and if the bright minds which we hope will attack this problem can combine twentieth century needs with the decorative spirit and style which evolved the Pistoja Hospital, the results will certainly justify our hopes. Be it understood, however, that the last word is never uttered on matters of architecture. A building may be totally different in mass, scheme, color treatment, and detail from the Ceppo Hospital while yet having all of its spirit. It is by no means needful nor desirable to copy the Italian model, but rather to draw from it the feeling of fitness in the use of the material, the frank, natural expression in design and perhaps suggestions in that most uncertain phase of modern work, the use of color.

A hospital has long been regarded and treated as a lugubrious problem, breathing miasma and germs, suggestive of night shade and hellebore, where good people die and autopsies are performed on their

bodies by pitiless scientists. But the hospital of our problem should be a thing of beauty, whose prominent features relate to sunshine and health, wherein unfortunates become happy and regain health, where everything is immaculate as well as comfortable. This is the idea of the modern hospital, and from the architectural standpoint it gains immensely in interesting possibilities by giving it a light, joyous treatment.

The French, with the happy characterization of their race, call the public hospital the house of God. The patients are His guests. We hope the contestants will approach this hospital problem not as if it called for a hard, matter of fact solution, but as an opportunity to adorn a civic tale and to apply to it some real architecture.

And just another suggestion would we offer regard-

ing detail. A diaper treatment is not the only way to suggest the use of burnt clay materials, and because we are using a material which lends itself to small pieces, geometrical pattern work is by no means indispensable

as indicating terra cotta. The Pistoja Hospital has neither, nor has the marvelous terra cotta work of Pavia and north Italy any use for oil cloth designs in burnt clay. Such features have a distinct, if limited, application. Pistoja gains its effect by broad, unbroken wall surfaces and shadows contrasted with condensed, enriched, and strongly colored ornament, and the lead is a most excellent one to follow in studying our problem.

THE BRICKBUILDER has during the past few years published considerable material in the form of illustrations and articles which treat of Hospital Plan and Design, and it is likely that those intending to enter this competition will find much of interest in the work presented. The following is a list of the numbers in

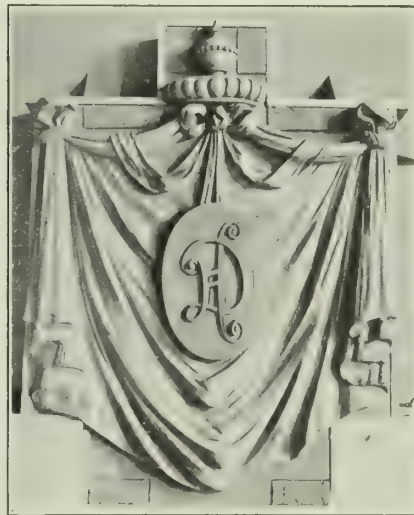
which the articles and illustrations are published :

- 1900 — November and December numbers.
- 1902 — March, May, June, and August numbers.
- 1903 — February, May, June, July, August, September, and December numbers.
- 1904 — February, March, April, May, June, July, and August numbers.
- 1905 — March and August numbers.
- 1906 — January number.
- 1907 — April number.
- 1908 — April and June numbers.

In connection with this list it should be stated that the numbers cannot be supplied, they being out of print.



DETAIL BY NEVILLE & BAGGE, ARCHITECTS.
New York Architectural Terra Cotta Company, Makers.



DETAIL BY WILLIAM H. GRUEN, ARCHITECT.
Winkle Terra Cotta Company, Makers.



DETAIL BY BARNET, HAYNES & BARNET, ARCHITECTS.
St. Louis Terra Cotta Company, Makers.



FIREPROOFING WORK IN THE NATIONAL MUSEUM, WASHINGTON, D. C.



DETAIL FOR RAILWAY STATION,
WATERBURY, CONN.
McKim, Mead & White, Architects.
South Amboy Terra Cotta Company, Makers.

A CORRECTION.

Our attention has been called to the fact that John A. Tompkins, 2d, was associated with Grosvenor Atterbury as architects for the house, 18 East

for September, 1907. Greater New York, which presents about twenty-five per cent of the total construction, shows an increase of 14 per cent

over the same month last year. Twenty-eight cities show a gain of from 1 to 201 per cent and 17 show a loss of from 1 to 57 per cent. The principal increase occurs at: Birmingham, 137 per cent; Cleveland, 52; Denver, 113; Kansas City, 47; Louisville, 38; Milwaukee, 56;

Mobile, 23; New Haven, 39; Paterson, 201; Salt Lake City, 51; St. Paul, 86; Syracuse, 75; Worcester, 39. The indications are that henceforth an increase in building operations may be expected, and, current therewith, a gradual increase in the price of building material. Parties who contemplate the erection of buildings of any sort whatever will profit to the extent of from 10 to 20 per cent by taking advantage of the present low prices and starting operations at once.



DETAIL BY ALBERT RANDOLPH ROSS,
ARCHITECT.

Brick, Terra Cotta and Tile Company, Makers.

75th street, illustrated on page 188 of THE BRICKBUILDER for September, and that Stowe Phelps was associated with Mr. Atterbury as architects for the houses, 105 and 107 East 73d street, illustrated on page 189 of the same issue of THE BRICKBUILDER.
— EDS.

RESTRICTING SKYSCRAPERS.

The building code revision commission of New York City has recommended a restriction to 350 feet as the maximum height for future buildings in that city. This limit is to be permissible only for structures facing on parks and plazas. On ordinary streets the limit is to be 300 feet, and on streets only forty-five feet in width the height cannot exceed 135 feet. Of course

these are only recommendations, but they consider that people who are forced to live and do business on the lower levels have right to a reasonable amount of light and air.

BUILDING OPERATIONS FOR SEPTEMBER.

According to official building statistics from forty-five principal centers of construction, throughout the country, reported by the *American Contractor*, New York, building operations for September, 1908, show an increase in the aggregate of seven per cent as compared with substantially the same cities



INTERIOR OF A CONFECTIONER'S SHOP, BOSTON.

A. B. Le Boutillier, Architect.

Showing floor of pale green glaze tile, made by Grueby Faience Company.

FIREPROOFING OF THE NATIONAL MUSEUM, WASHINGTON.

On another page there is illustrated an especially fine example of fireproof construction in the New National Museum at Washington, Hornblower & Marshall, architects. The importance of safeguarding this building and its contents from destruction by fire has led to a careful consideration of the whole matter of fireproof construction, with the result that hollow terra cotta blocks have been employed. Every part of the

work has received the closest scrutiny from the architects, government inspectors, and the contractors, with the result that the building is considered to be absolutely indestructible by fire. The



DETAIL BY J. K. JENSEN, ARCHITECT.
New Jersey Terra Cotta Company, Makers.

contract for this work was executed by O. W. Ketcham of Philadelphia.

LONG SPAN FIREPROOF CONSTRUCTION IN REINFORCED TERRA COTTA HOLLOW TILE.

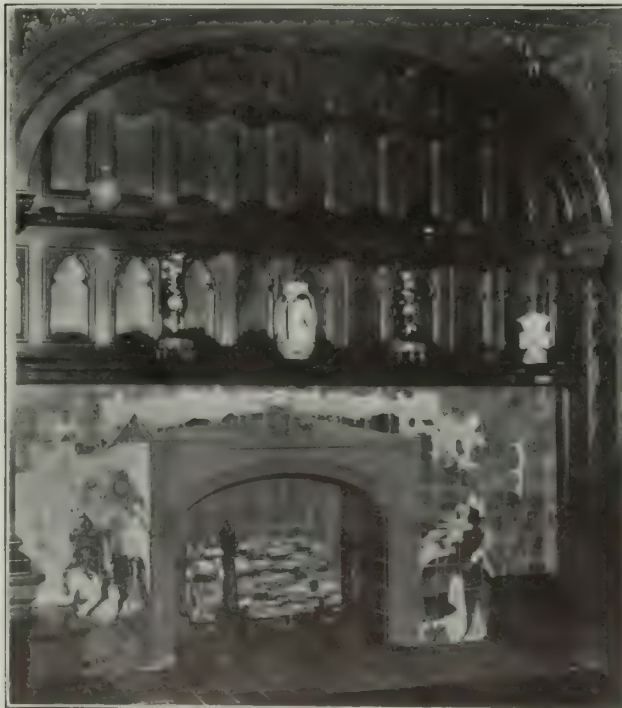
Here is a work — just issued by the National Fireproofing Company — which is an epitome of the most scientific methods employed in burnt clay fireproof construction. It is a work which presents to the architect in a clear and comprehensive manner data which has to do with fireproof construction of all types of buildings. It is abundantly illustrated from important work which has been done, and the various types of construction and the sizes and shapes of the blocks employed, in addition to which there are valuable tables giving load capacity of different spans and other types of construction. Fireproofing with economy in the use of structural steel is the keynote of this work, which we are glad to commend to our readers at this period of our national development when our fire loss is reaching the enormous sum of \$250,000,000 annually.



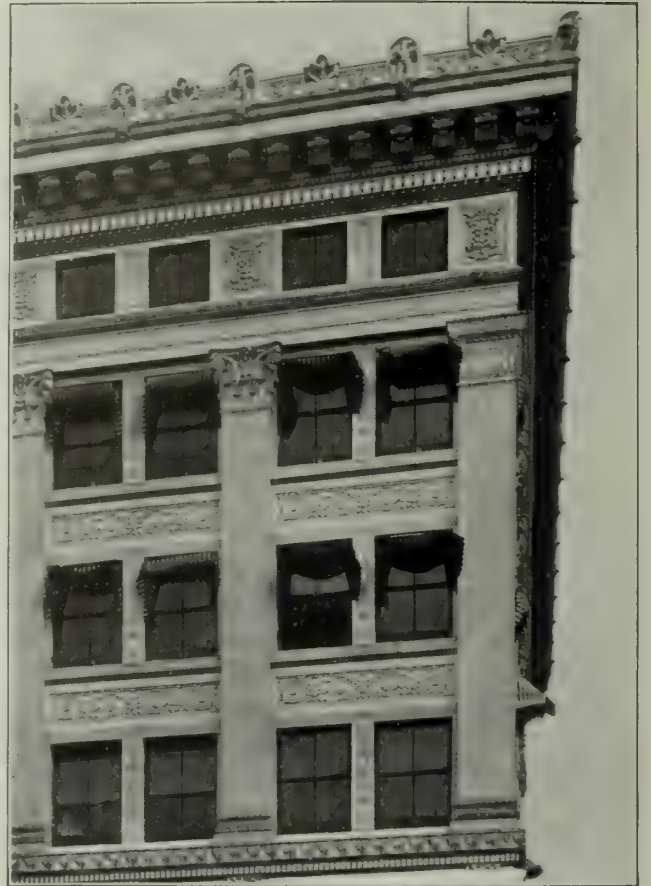
DETAIL FOR A MANTEL.
Lord & Hewlett, Architects.
Conkling-Armstrong Terra
Cotta Company, Makers.

IN GENERAL

The terra cotta and faience employed in the new



MANTEL, BY CARPENTER & CROCKER, ARCHITECTS.
Facing around fireplace of dull glazed faience, made by Hartford
Faience Company.



DETAIL OF FRICK ANNEX BUILDING, PITTSBURG.

D. H. Burnham & Co., Architects.

750,000 enameled bricks made for this building by American Enameled
Brick Company.

Brooklyn Academy of Music, much of which is in color, was manufactured by the Atlantic Terra Cotta Company.

The bricks used in the exterior of the Academy of Music, Brooklyn, were furnished by Sayre & Fisher Co. A pattern is worked into the wall by the use of header bricks with a lyre stamped on them.

The terra cotta used in the new Gaiety Theater, 46th street and Broadway, New York, Herts & Tallant, architects, was furnished by the Atlantic Terra Cotta Company.

A rough finished white brick in Norman size, known as "Parkhurst Church" brick, was used in the façade of the new Gaiety Theater, 46th street and Broadway, New York, Herts & Tallant, architects. These bricks are manufactured by Sayre & Fisher Co.

The architects for the house 34 East 50th street, New York, illustrated on page 210 of THE BRICKBUILDER for September, were William Emerson and Boring & Tilton, associated.

One hundred architects will probably be permitted to compete in designing the new Boston College, a Catholic institution to be erected at Chestnut Hill, one of the suburbs of the city.

Charles Edward Choate, architect, formerly of Augusta, Ga., has removed his office to 629 Candler Bldg., Atlanta, Ga.

Electus D. Litchfield, architect, New York, has withdrawn from membership in the firm of Lord & Hewlett, and has entered into co-partnership with Tracy & Swartwout, the new firm name being Tracy, Swartwout & Litchfield, offices 244 Fifth avenue, New York.

The Twenty-Fourth Annual Exhibition of the Architectural League of New York will be held in the building of the American Fine Arts Society, 215 West 57th street, January 31 to February 20 inclusive. Exhibition hours, Sundays, 12 M. to 6 P.M. Week days, 10 A.M. to 6 P.M. — 8 to 10 P.M. Last day for return of entry



ELGIN NATIONAL WATCH WORKS, ELGIN, ILL.
Patton & Miller and Frank Abbott, Architects.
Entire group roofed with Ludowici-Celadon Company "French A" Tiles.



HOUSE FOR SENATOR G. S. NIXON, RENO, NEV.
Roofed with Red Roman Special Tile made by Cincinnati Roofing Tile and Terra Cotta Company.

slips, December 26. Last days for the reception of exhibits, January 14 and 15, 9 A.M. to 5 P.M. Annual dinner, Friday, January 29, 7 P.M. League reception, Saturday, January 30, 3 to 6 P.M. Exhibits discharged Monday, February 22.

Arthur H. Ebeling has opened an office for the practise of architecture in the Marquette building, Davenport, Iowa. Manufacturers' catalogue and samples solicited.

The Twin City Brick Company of St. Paul is introducing into the market a new brick of beautiful texture which they have designated as "Rustic Moss Face." These bricks have been used for three mantels in the Officers' Club House, Vancouver Barracks, Washington (State).

At Washington the



DETAIL BY LOUIS CURTISS,
ARCHITECT.
Northwestern Terra Cotta Company,
Makers.

new Anacostia Bridge will be thrown open to the public December 1. . . . Work on the Carnegie Institution Building at 16th and P streets, N. W., is progressing rapidly and is expected to be ready for occupancy July 1, 1909. . . . The new home of Perry Belmont has given much dignity to the triangle bounded by New Hampshire avenue, 18th and R streets. . . . Mr. Edson Bradley's house on Dupont Circle is being elaborately remodeled and now ranks among the important residences of the capital. . . . A large residence is being erected for Mr. A. M. Lothrop (of Woodward & Lothrop Co.) on the heights overlooking Washington city on the south, and Rock Creek valley, Connecticut avenue bridge, and the hills to the north.

WANTED—American of 29 married, with nine years all around experience in Chicago offices seeks permanent position or interest in business with Architect in West or Southwest, where integrity and conscientious efforts will be appreciated. Good designer, practical, up to date, systematic, well educated and refined. Address, "Chicago," care of THE BRICKBUILDER.

INDOORS AND OUT. I have a complete file of perfect copies of **INDOORS AND OUT** (the 27 numbers issued) which I will deliver to any address in the United States for \$10.00. Money must accompany order. Address, I. G. O., care THE BRICKBUILDER.

Water Color Studies

210 Fine Reproductions in Color of Original Water Colors by French and English Artists, in *Four Portfolios*

ENGLISH CATHEDRAL SCENES

Painted by W. W. Collins, R.I. . . . 60 plates, \$2.00

FRENCH CATHEDRAL SCENES

Painted by Herbert Marshall, R.W.S. . . . 60 plates, \$2.00

VERSAILLES AND THE TRIANONS

Painted by Renei Binet . . . 60 plates, \$2.00

VENICE

Painted by Reginal Barratt, A.R.W.S. . . . 30 plates, \$1.50

Four portfolios sent prepaid on receipt of \$7.00

Published by M. A. VINSON

205-206 Caxton Building

CLEVELAND, OHIO

WANTED by M. A. Vinson, numbers of "Brickbuilder" listed as follows: Vol. 7, No. 8, Aug., 1898; Vol. 8, No. 4, Apr., 1899.

Competition for a Hospital Building.

First Prize, \$500.

Second Prize, \$200.

Third Prize, \$100.

COMPETITION CLOSES JANUARY 16, 1909.

PROGRAMME.

THE problem is a Hospital Building. The location may be assumed in any American city of about 30,000 inhabitants. The lot contains about five acres and has a frontage of 300 feet on the main avenue, leading to the city, which runs east and west. The part of the lot on which the building is to be placed is practically level.

It is to be a block hospital with three floors above the basement. The height of the first and second stories is to be not less than 12 feet. No one floor above the basement is to contain more than 10,000 square feet, exclusive of sun rooms and approaches. The length of the structure, including sun rooms and approaches, cannot exceed 160 feet.

The following should be provided for in the plan:

Two ten bed wards for each sex in the Medical Department; two ten bed wards for each sex in the Surgical Department; and in connection with each of these wards two one bed rooms. Two ten bed wards for each sex in the Children's Department. A Maternity Department to accommodate six patients, two of which are to be in private rooms, and in conjunction with this department a delivery room and baby room.

In conjunction with the wards there should be provided service rooms or diet kitchens, nurses utility rooms, linen rooms, broom and medicine closets, clothing rooms and toilet rooms.

In addition to the private rooms provided for in connection with the open wards there should be at least eight private rooms for single patients.

Operating and accident rooms, with their adjuncts of anæsthetic, sterilizing, bandage, instrument, nurses' work room, reception, and recovery rooms, also surgeons' dressing room and X-ray room.

Single bed rooms for at least twenty nurses; nurses' parlor; suite for superintendent and head nurse; bed room for two internes; reception room for patients; laboratory; drug room; cooking class room; kitchens; store rooms; laundry; bed rooms for fourteen domestics — four being males; dining room for staff and nurses; dining room for domestics; toilet rooms; small out-patients department; autopsy room; boiler room; fan room, and such other features as may suggest themselves to the designer.

The exterior of the building is to be designed entirely in Architectural Terra Cotta, employing colored terra cotta in at least portions of the walls.

The following points will be considered in judging the designs:

- A. Frank and logical expression of the prescribed material.
- B. Rational and logical treatment of the exterior.
- C. Excellence of plan.

In awarding the prizes the intelligence shown in the constructive use of terra cotta and the development or modification of style, by reason of the material, will be taken largely into consideration.

It must be borne in mind that one of the chief objects of this competition is to encourage the study of the use of Architectural Terra Cotta. There is no limitation of cost, but the designs must be suitable for the character of the building and for the material in which it is to be executed.

DRAWINGS REQUIRED.

On one sheet, at the top, the front elevation drawn at a scale of 8 feet to the inch. In the title of this elevation state which point of the compass it faces. On the same sheet, below the front elevation, the four floor plans drawn at a scale of 16 feet to the inch.

On a second sheet, at the top, the elevation of secondary importance drawn at a scale of 16 feet to the inch; immediately below half inch scale details of the most interesting features of the design. The details should indicate in a general manner the jointing of the terra cotta and the sizes of the blocks. The color scheme is to be indicated either by a key or a series of notes printed on the same sheet with the secondary elevation and details, at a size which will permit of two thirds reduction.

The size of each sheet (there are to be but two) shall be exactly 36 inches by 24 inches. Strong border lines are to be drawn on both sheets one inch from edges, giving a space inside the border lines 22 inches by 34 inches. The sheets are not to be mounted.

All drawings are to be in black ink without wash or color, except that the walls on the plans and in the sections may be blacked-in or cross-hatched.

Graphic scales to be on all drawings.

Every set of drawings is to be signed by a *nom de plume* or device, and accompanying same is to be a sealed envelope with the *nom de plume* on the exterior and containing the true name and address of the contestant.

The drawings are to be delivered flat at the office of THE BRICKBUILDER, 85 Water Street, Boston, Mass., charges prepaid, on or before January 16, 1909.

Drawings submitted in this competition must be at owner's risk from the time they are sent until returned, although reasonable care will be exercised in their handling and keeping.

The prize drawings are to become the property of THE BRICKBUILDER, and the right is reserved to publish or exhibit any or all of the others. Those who wish their drawings returned may have them by enclosing in the sealed envelopes containing their names, ten cents in stamps.

The designs will be judged by three or five well-known members of the architectural profession.

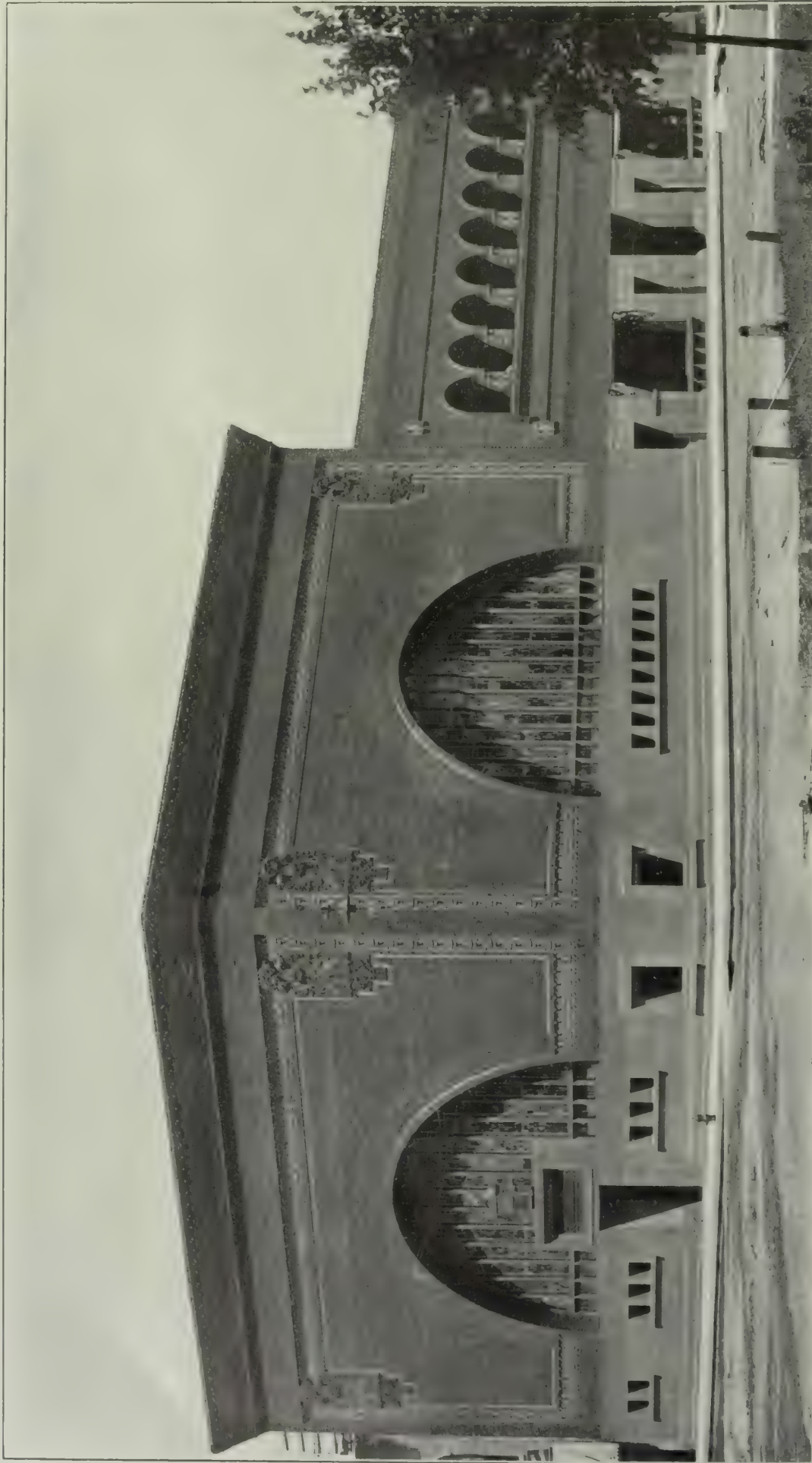
For the design placed first in this competition there will be given a prize of \$500.

For the design placed second a prize of \$200.

For the design placed third a prize of \$100.

We are enabled to offer prizes of the above-mentioned amounts largely through the liberality of the terra cotta manufacturers who are represented in the advertising columns of THE BRICKBUILDER.

This competition is open to everyone.



VIEW OF FRONT AND SIDE.
NATIONAL FARMERS' BANK,
OWATONNA, MINN.
LOUIS H. SULLIVAN,
ARCHITECT.





VIEW OF SIDE.



VIEW OF BANKING ROOM.

NATIONAL FARMERS' BANK, OWATONNA, MINN.

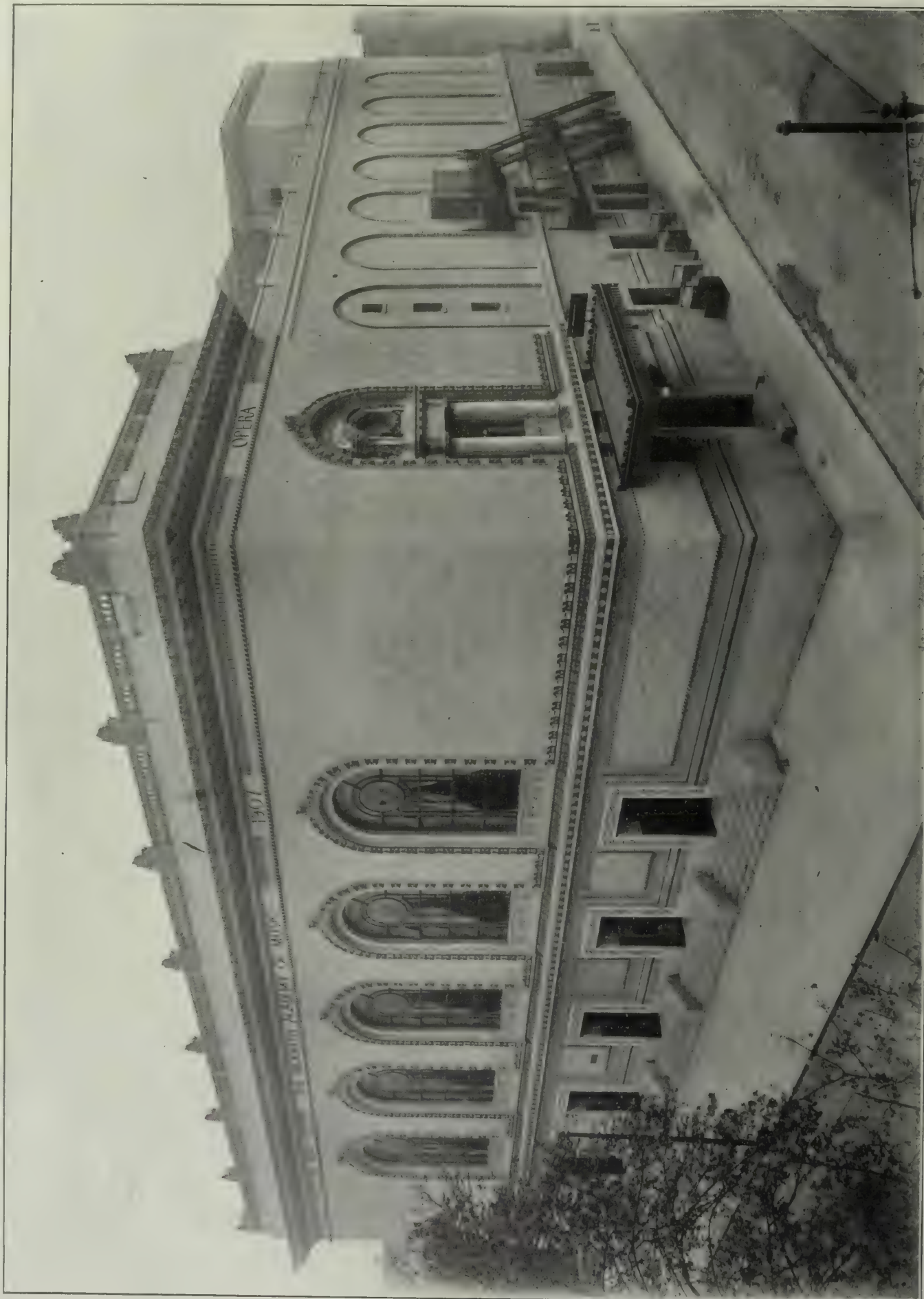
LOUIS H. SULLIVAN, ARCHITECT.



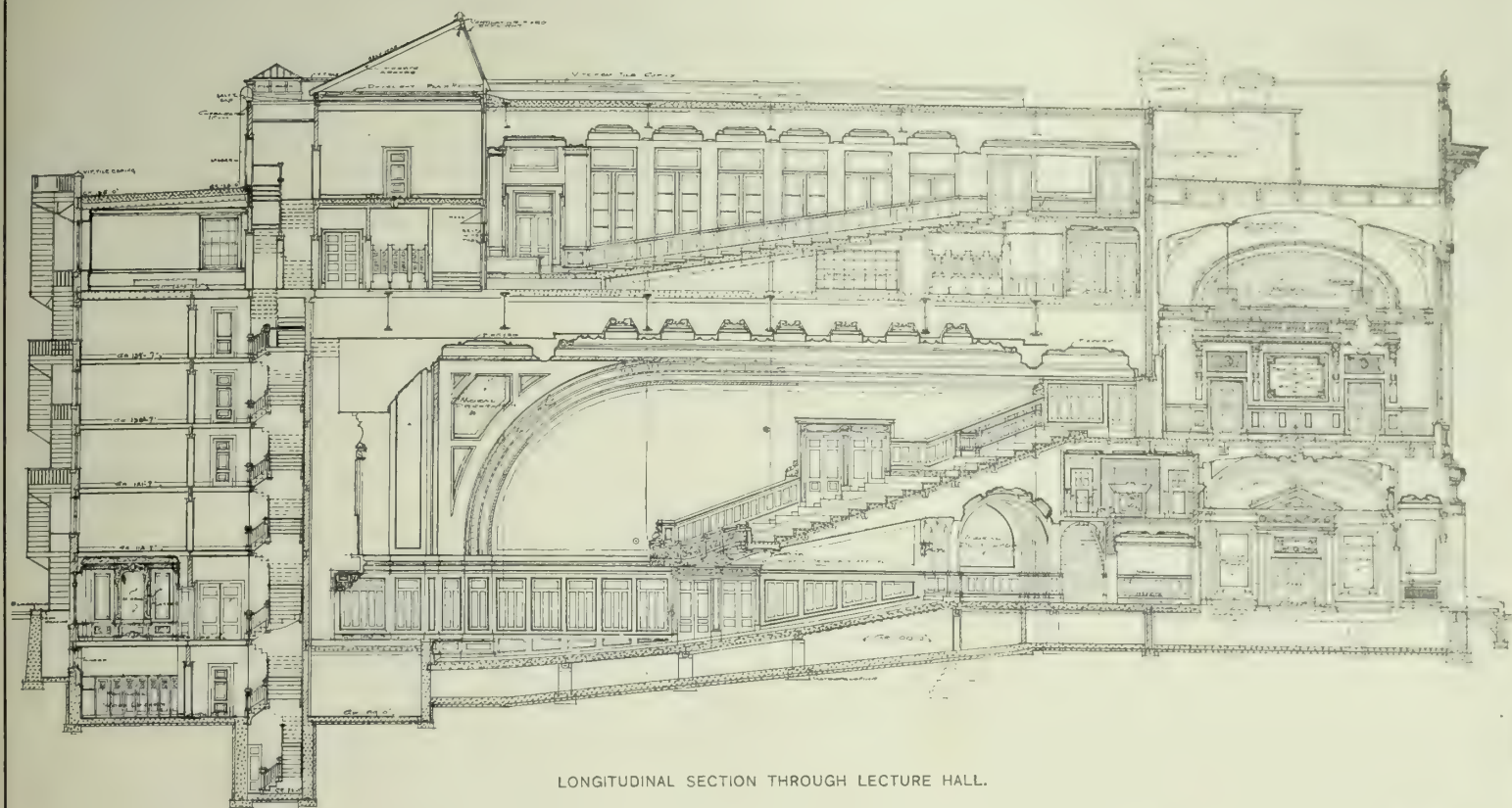
GAIETY THEATER, FORTY-SIXTH STREET AND BROADWAY, NEW YORK.

HERTS & TALLANT, ARCHITECTS.

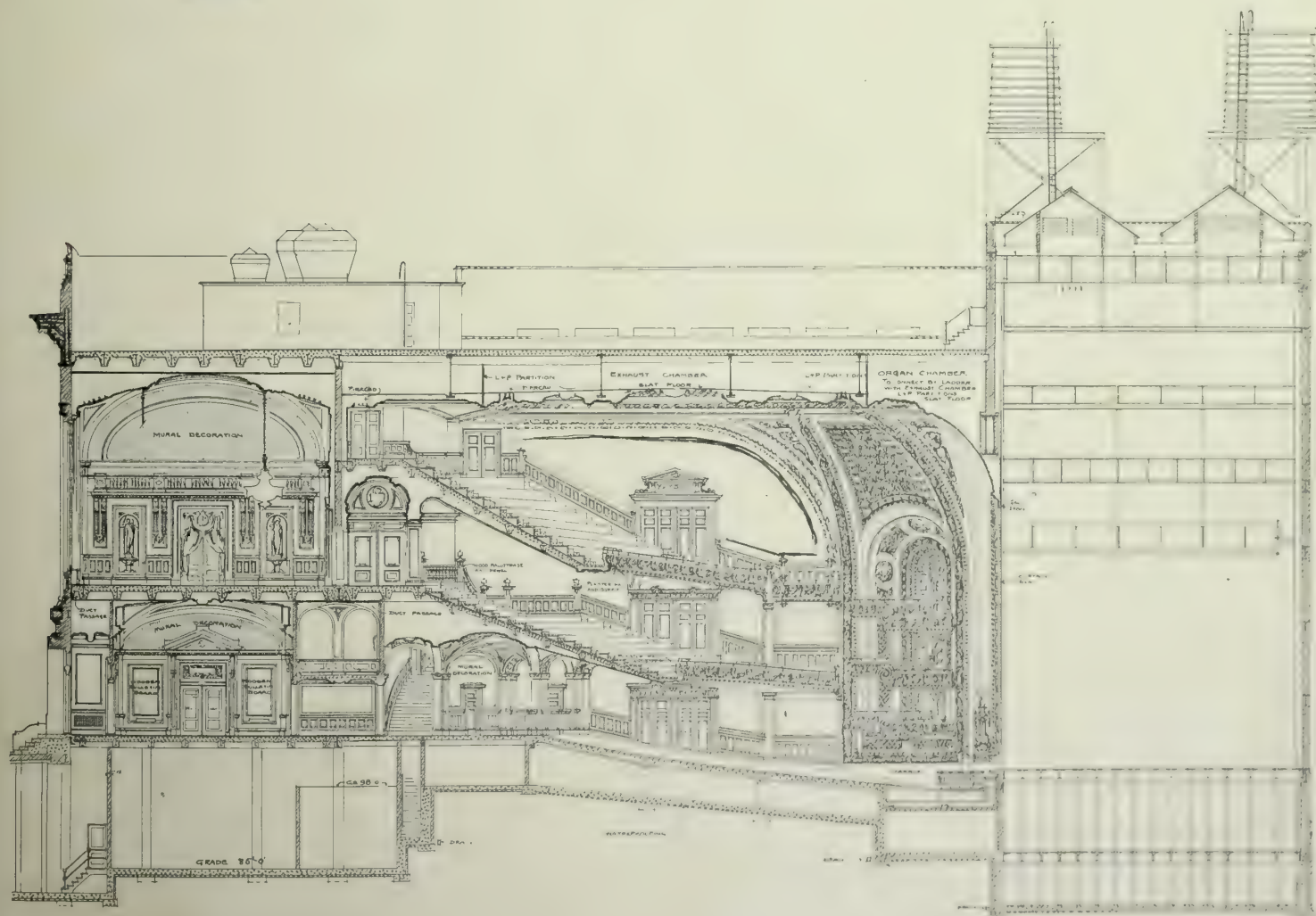
Hertz



VIEW AT CORNER OF LAFAYETTE AVENUE AND ASHLAND PLACE.
BROOKLYN ACADEMY OF MUSIC, BROOKLYN, N. Y.
HERTS & TALLANT, ARCHITECTS.



LONGITUDINAL SECTION THROUGH LECTURE HALL.



LONGITUDINAL SECTION THROUGH OPERA HOUSE.

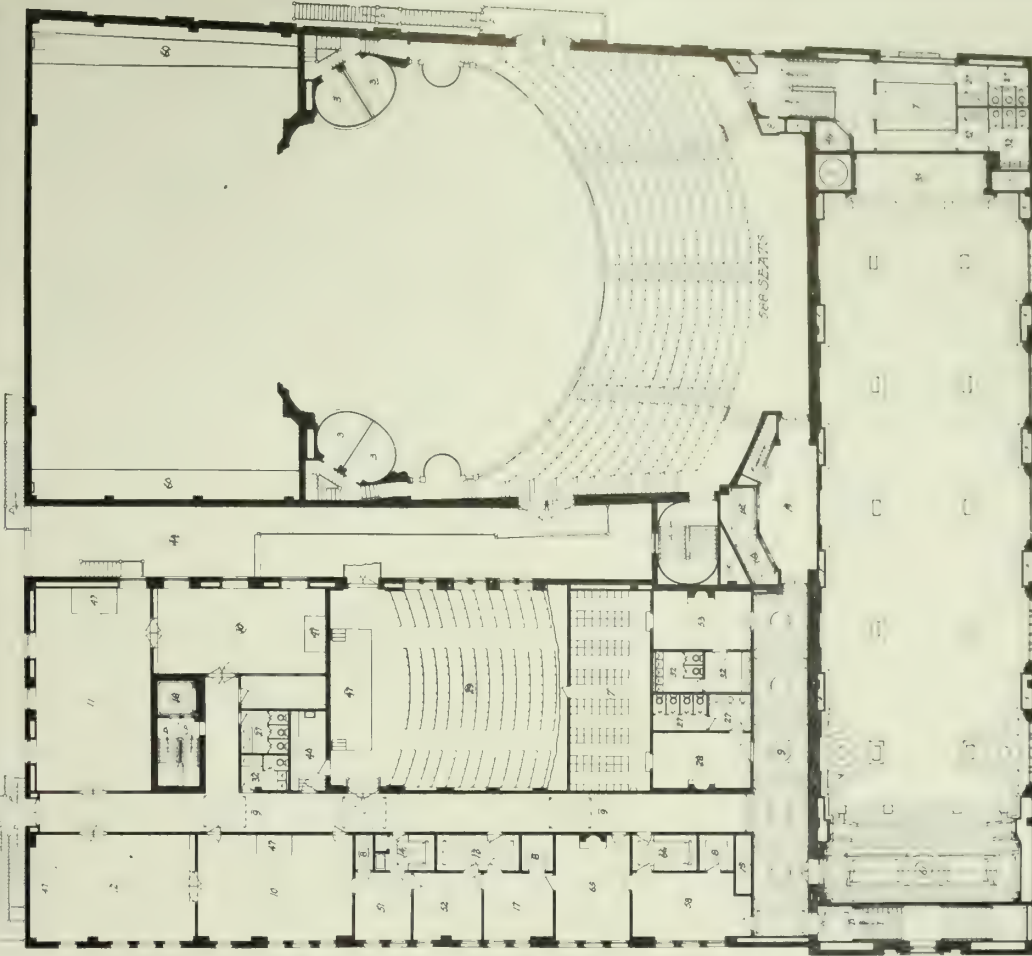
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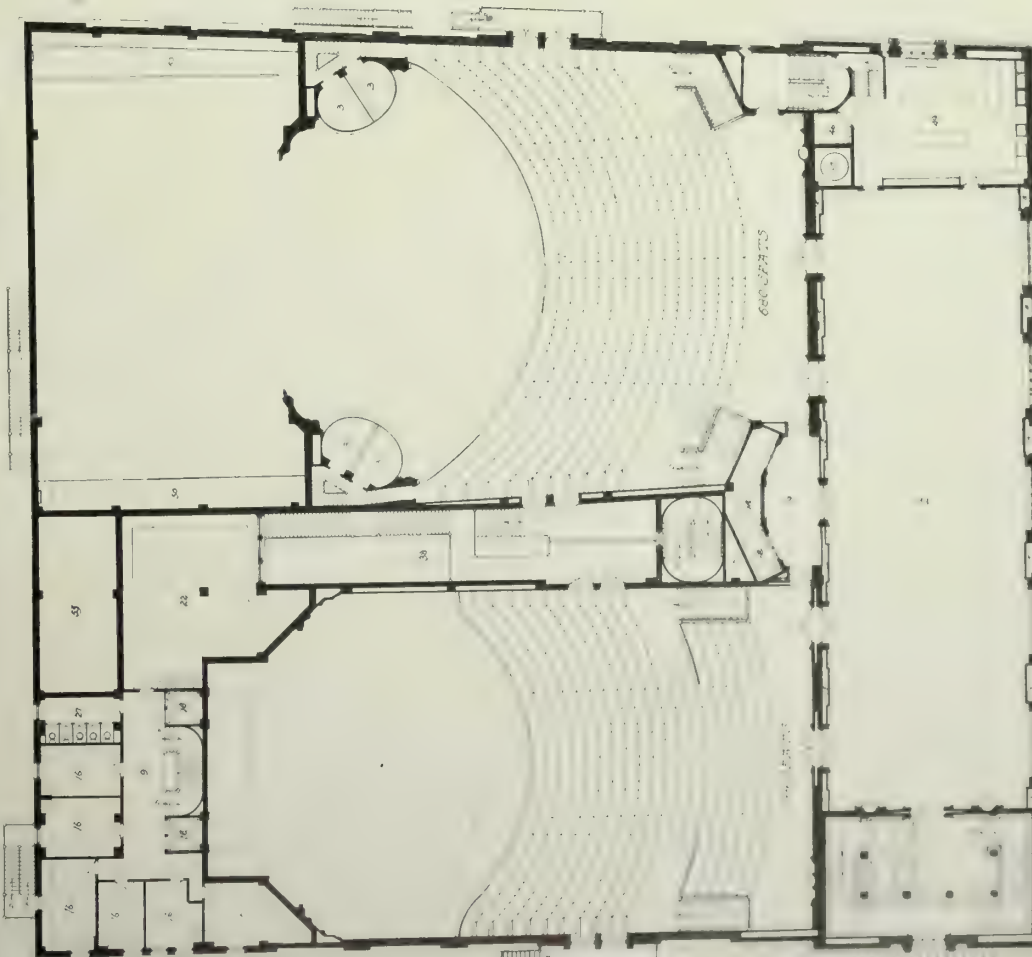


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SECOND MEZZANINE PLAN



FIRST BALCONY PLAN

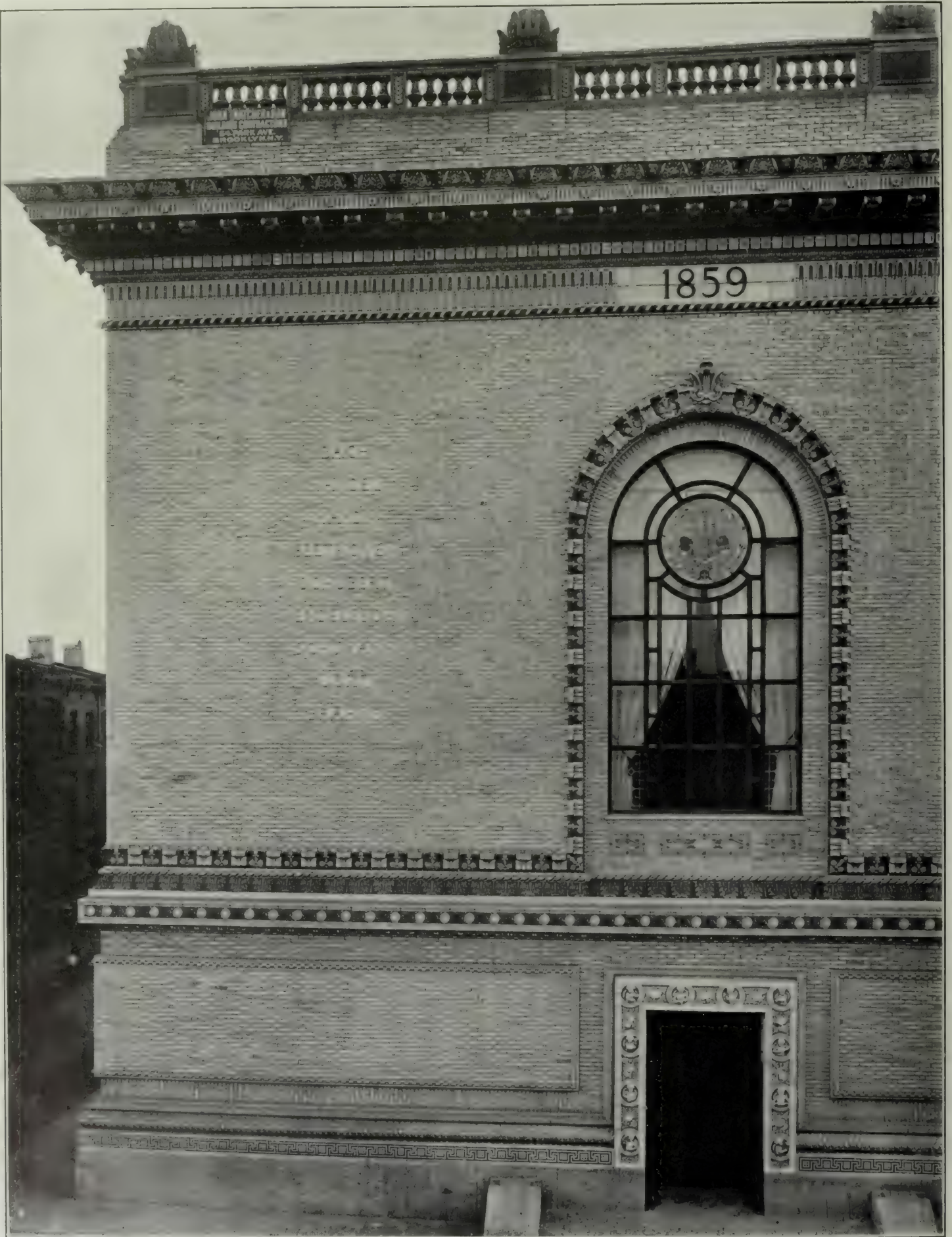
PLANS, BROOKLYN ACADEMY OF MUSIC, BROOKLYN, N. Y.

HERTS & TALLANT, ARCHITECTS.



HERTS & TALLANT, ARCHITECTS.





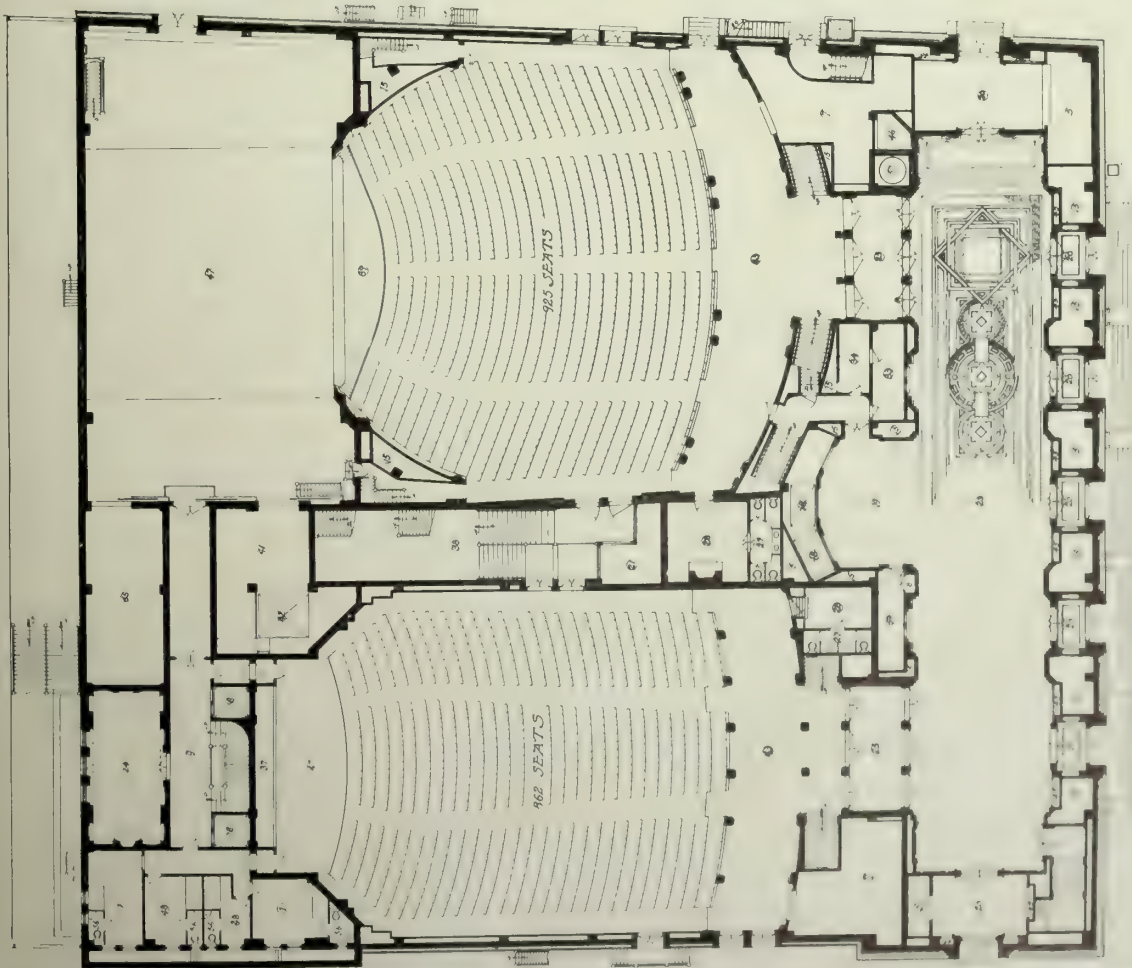
DETAIL OF LAFAYETTE AVENUE FACADE.

BROOKLYN ACADEMY OF MUSIC, BROOKLYN, N Y

HERTS & TALLANT, ARCHITECTS.

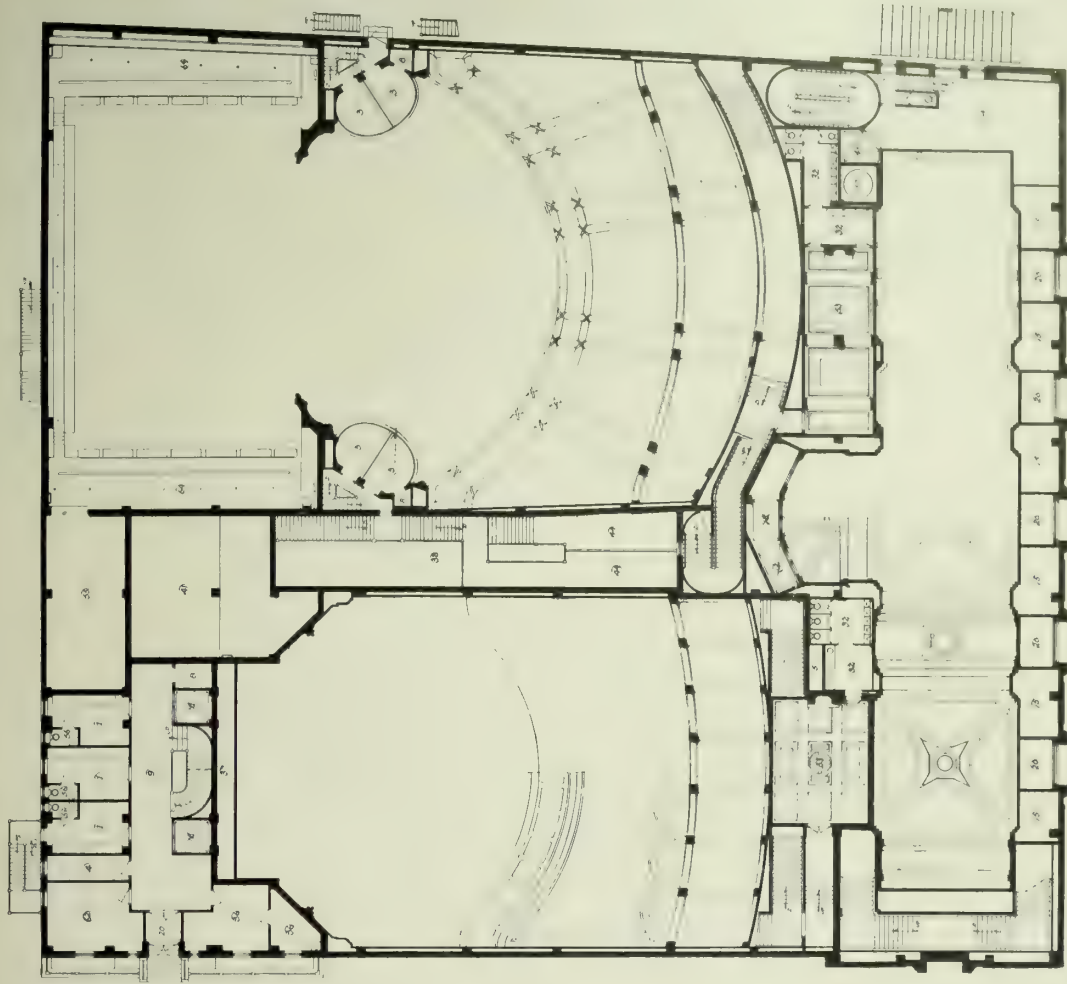


VIEW AT CORNER OF LAFAYETTE AVENUE AND ST. FELIX STREET.
BROOKLYN ACADEMY OF MUSIC, BROOKLYN, N. Y.
HERTS & TALLANT, ARCHITECTS.



FIRST FLOOR PLAN.

- 1. MAIN ENTRANCE
- 2. LOBBY
- 3. RECEPTION ROOM
- 4. OFFICE
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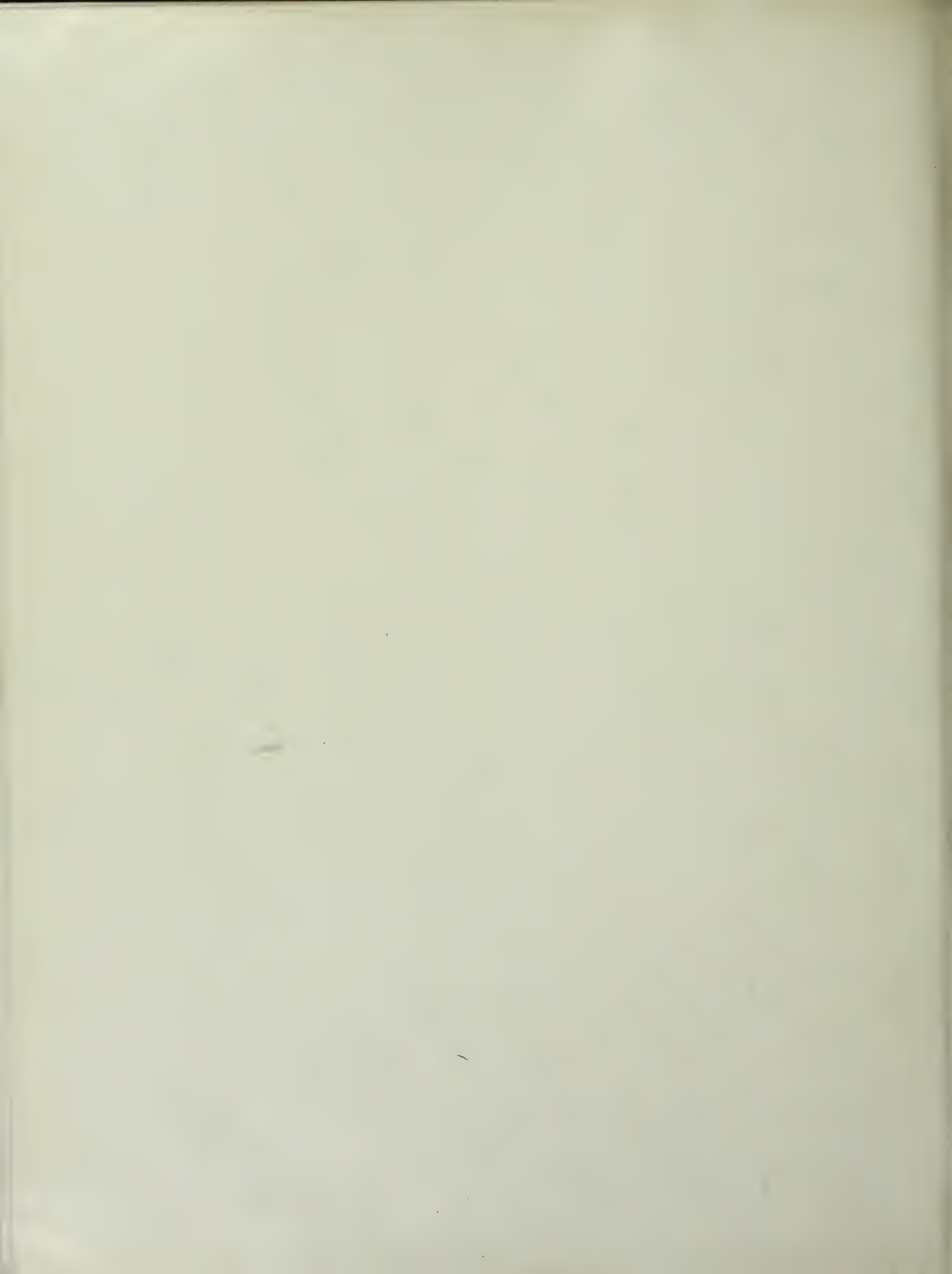


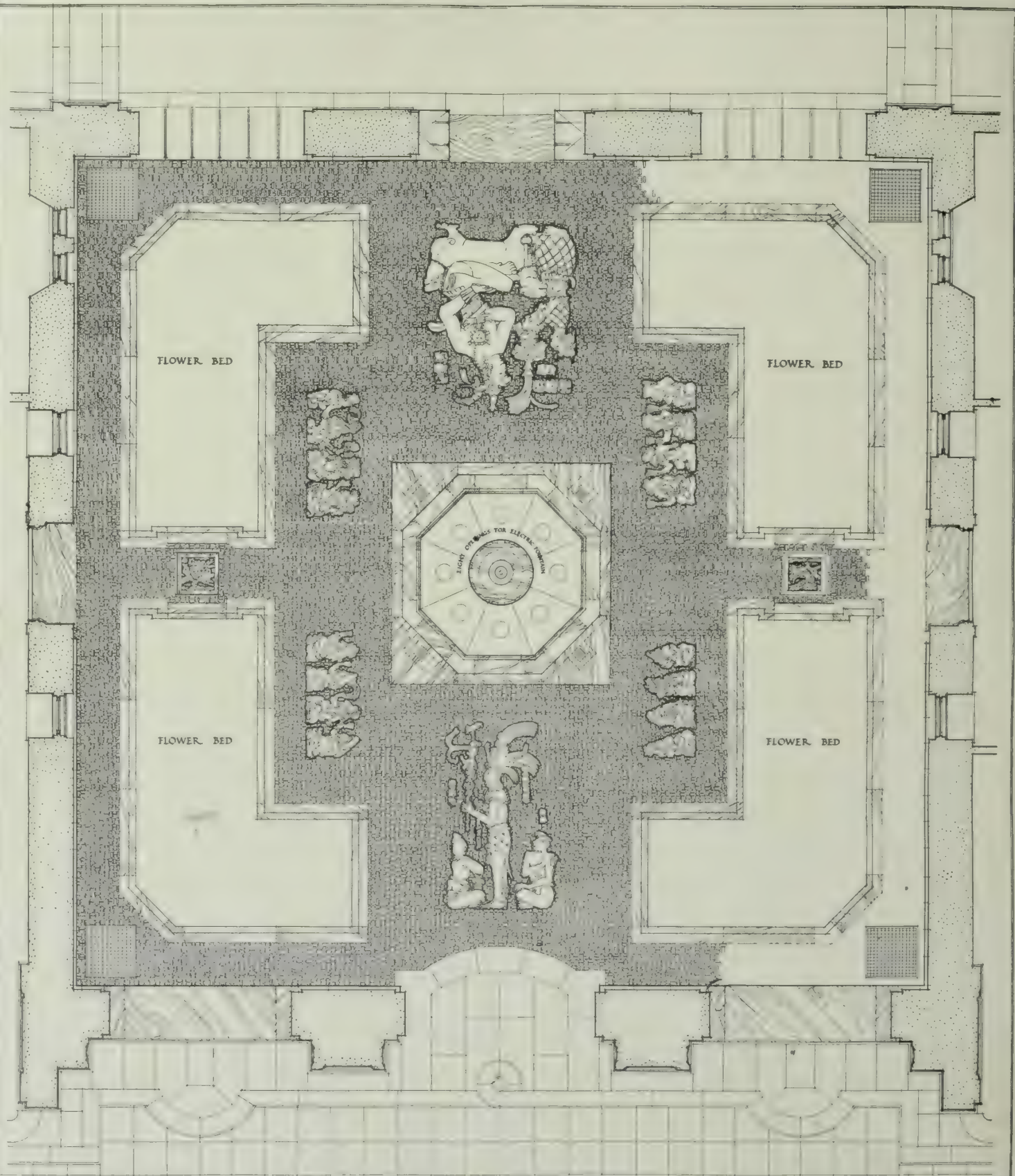
FIRST MEZZANINE PLAN.

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PLANS, BROOKLYN ACADEMY OF MUSIC, BROOKLYN, N. Y.

HERTS & TALLANT, ARCHITECTS.



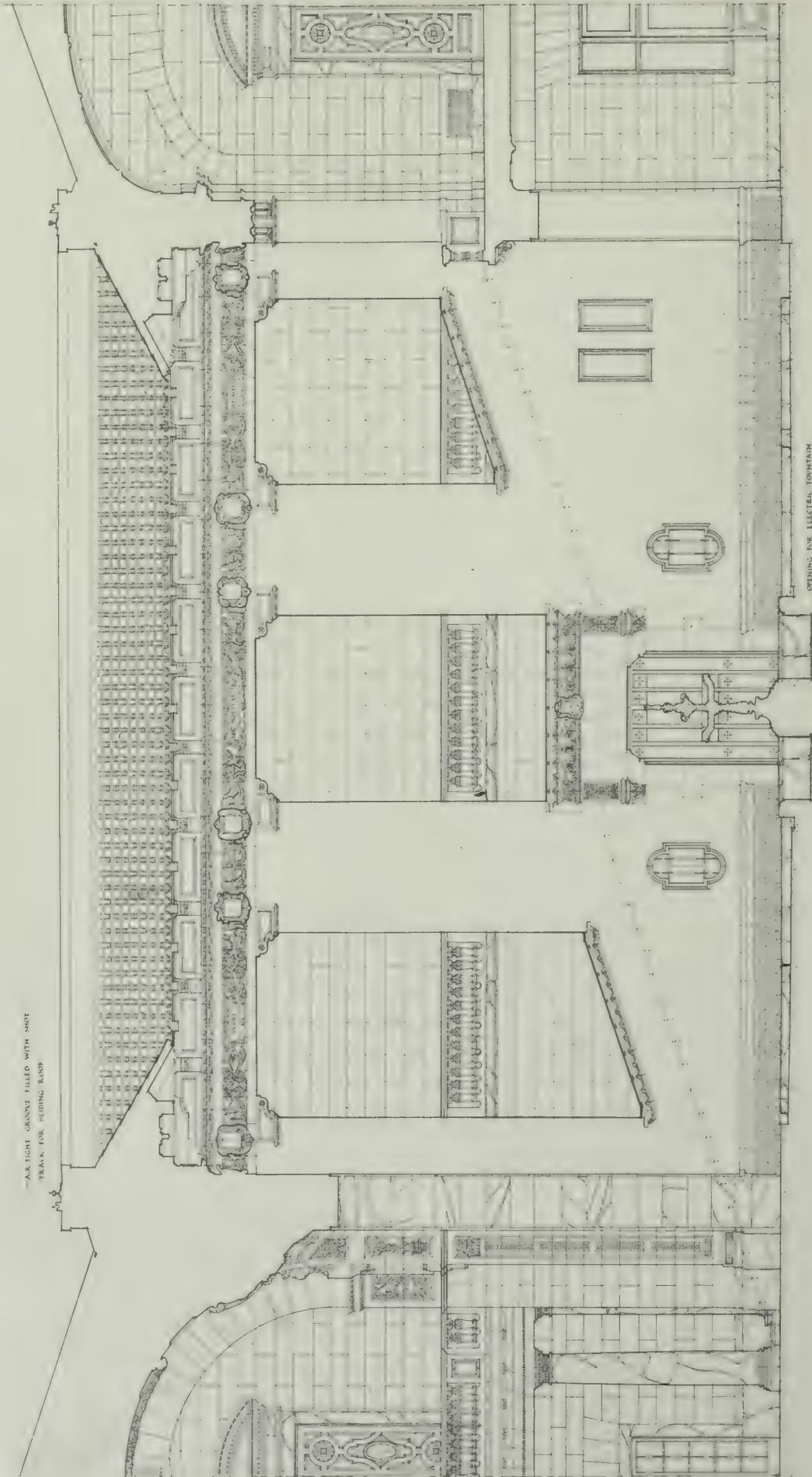


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WASHINGTON - D.C

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ASSOCIATED ARCHITECTS
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WILLIAM - COPELAND - FURBER
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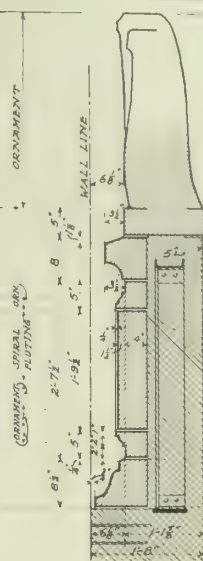
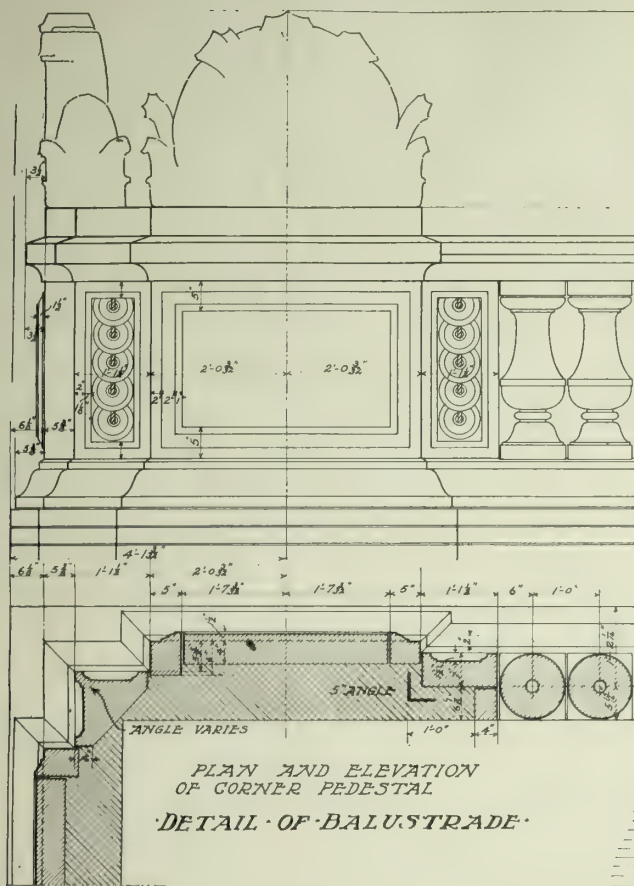


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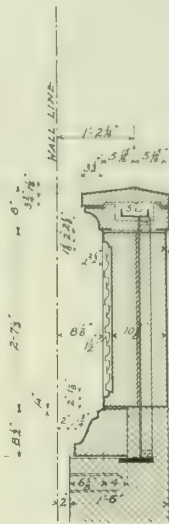
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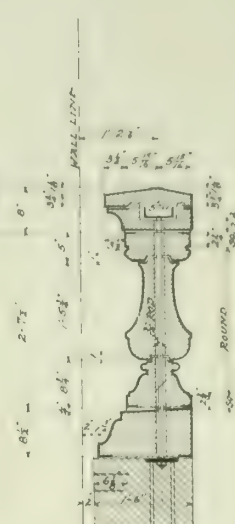
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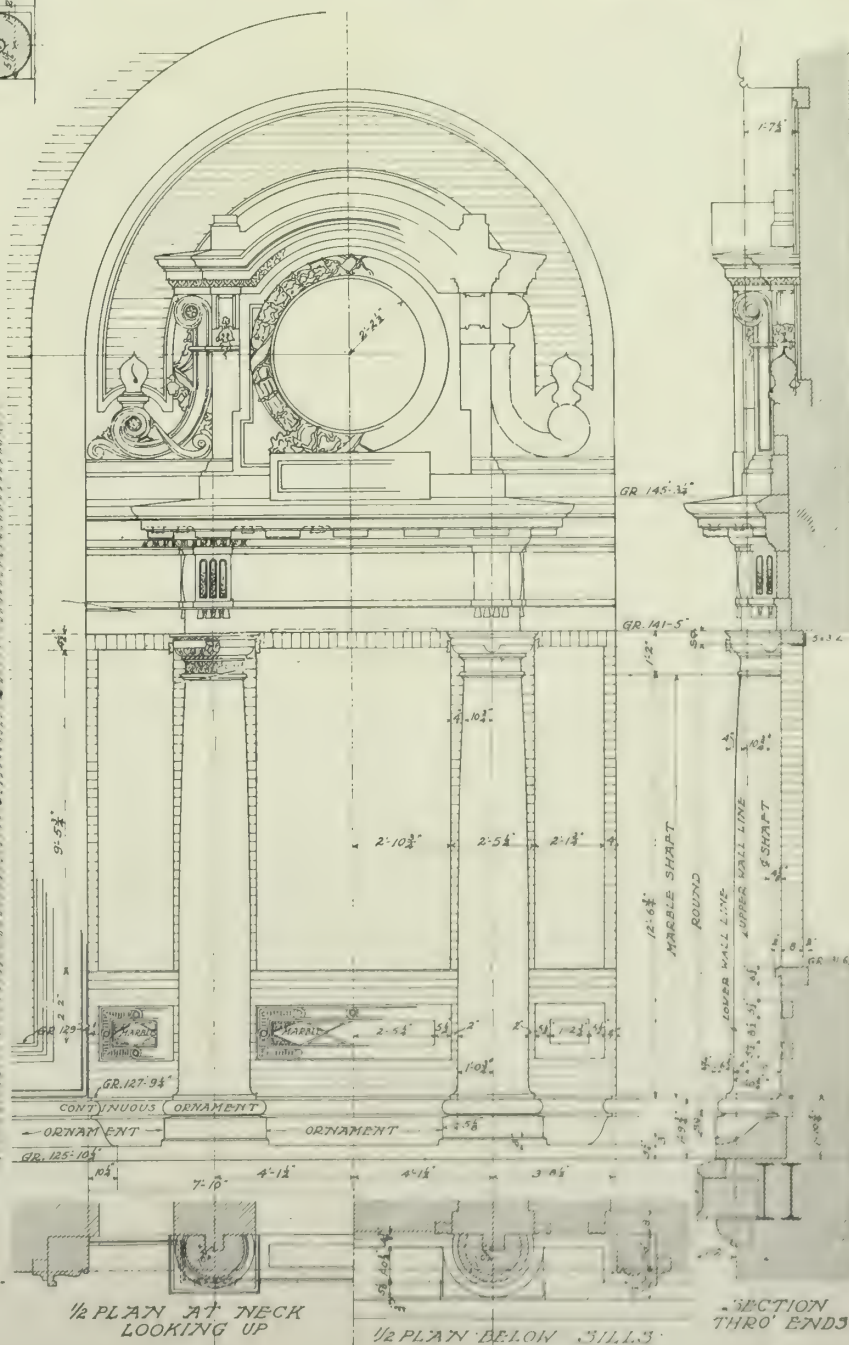
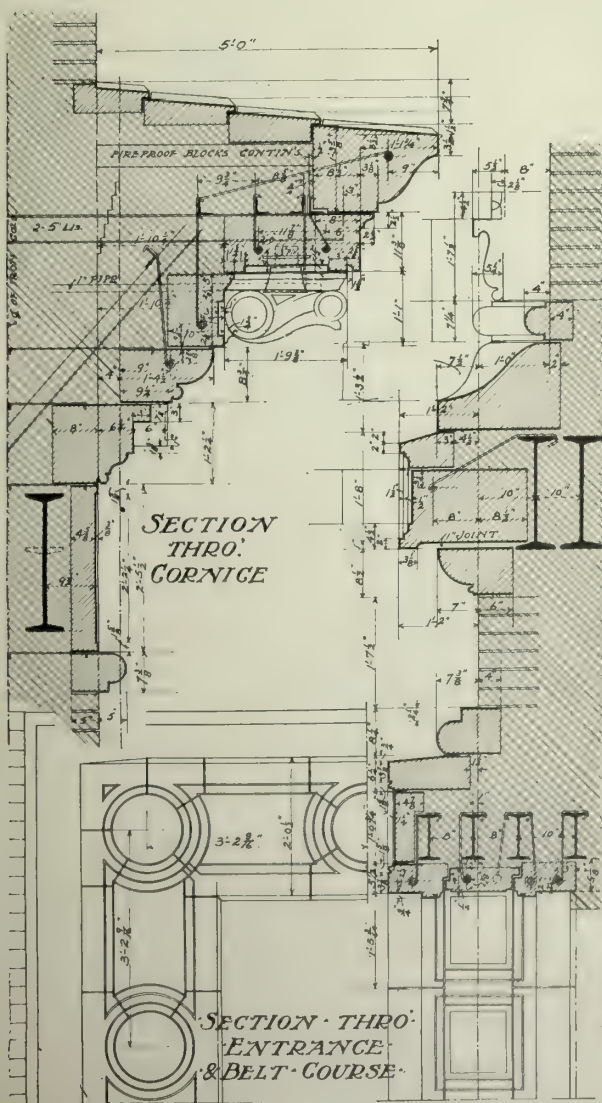
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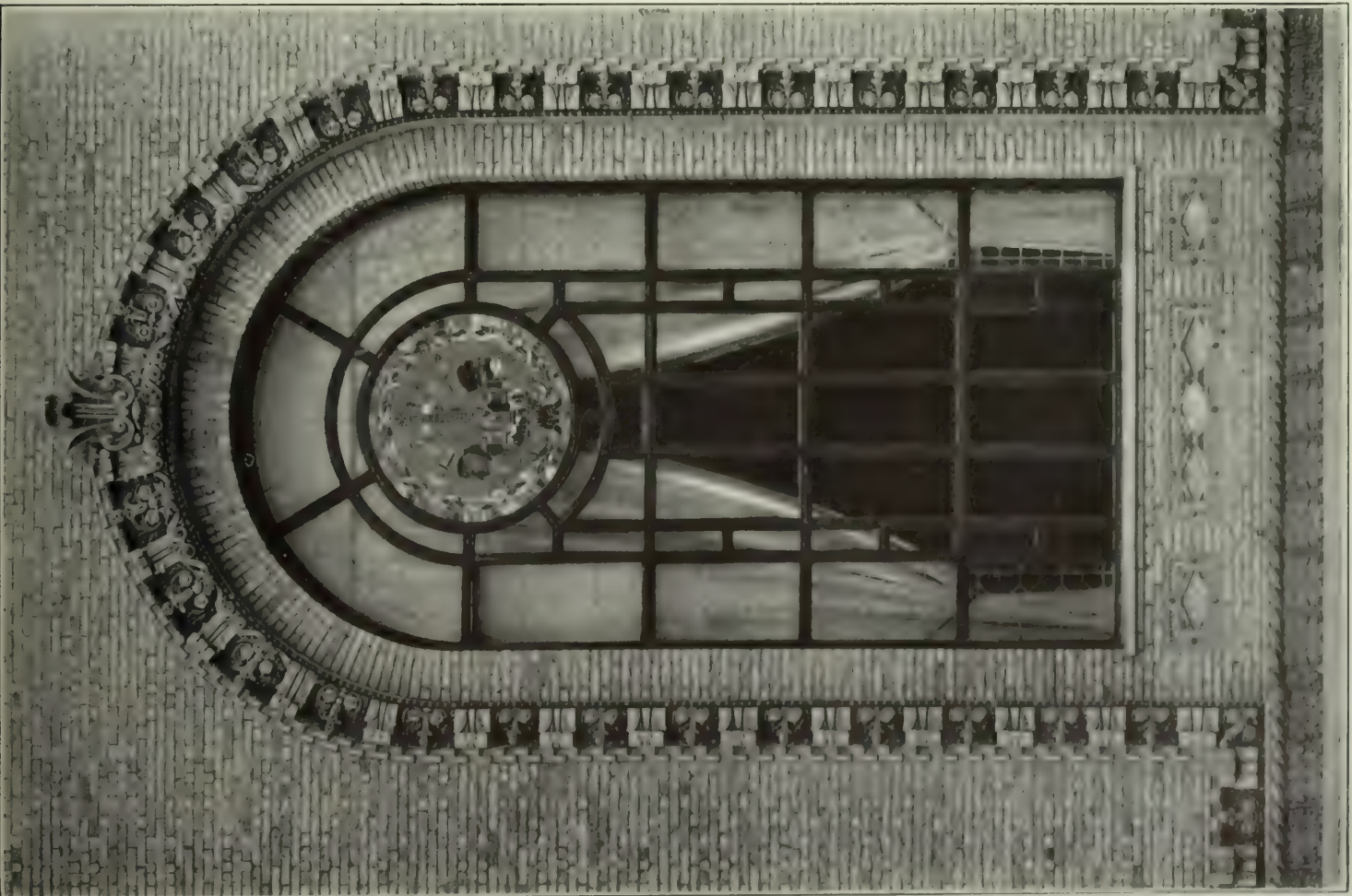
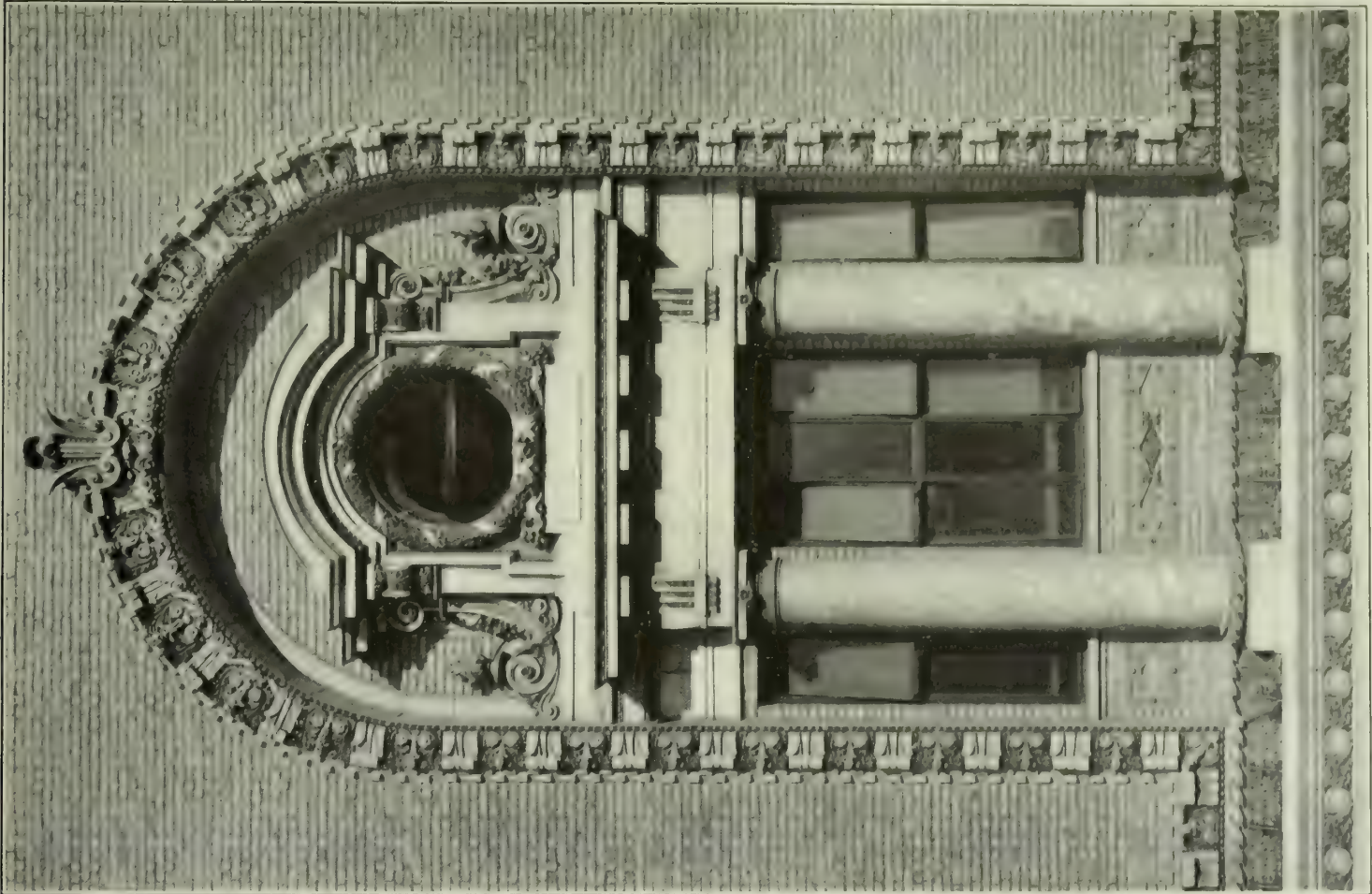


DETAILS OF EXTERIOR.

BROOKLYN ACADEMY OF MUSIC, BROOKLYN, N. Y.

HERTS & TALLANT, ARCHITECTS.





DETAIL OF PRINCIPAL WINDOWS.
BROOKLYN ACADEMY OF MUSIC, BROOKLYN, N. Y.
HERTS & TALLANT, ARCHITECTS.



THE BRICKBUILDER

VOLUME XVII

NOVEMBER 1908

NUMBER II

PUBLISHED MONTHLY BY ROGERS & MANSON

85 Water Street

Boston, Massachusetts

Entered at the Boston, Mass., Post Office as Second-Class Mail Matter, March 12, 1892.

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Advertisers are classified and arranged in the following order:

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Advertisements will be printed on cover pages only

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HENRY BACON; WILLIAM A. BORING; MAGINNIS, WALSH & SULLIVAN; MAURAN,
RUSSELL & GARDEN; RENWICK, ASPINWALL & TUCKER; LOUIS C.
SPIERING; R. CLIPSTON STURGIS.

LETTERPRESS

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THE FRANCISCAN MONASTERY OF THE TRINITY, DANTSIC, GERMANY.

THE BRICKVILDER

VOL. 17 NO. 11

DEVOTED TO THE INTERESTS OF ARCHITECTURE IN MATERIALS OF CLAY

NOVEMBER 1908

Courthouse Planning.

BY THOMAS M. KELLOGG.

IN every country the degree of progress is measured to a great extent by its method of administering justice. The existence and maintenance of law courts, and the gradual growth and increase in their scope and power, has been one of the strong and undeniable indications of the advance of civilization, tending towards an increase of personal liberty and an assurance of the rights of individuals to hold and enjoy the possession of property, and to maintain their civil rights under the protection of established laws.

The rapid growth of our own country and its marvelous development have been largely due to its ability to adopt and carry out from its infancy a system of wise and effective self government. In the pioneer days, when new settlements were being continuously formed, an element of lawlessness usually existed which threatened the safety and happiness of each community to as great an extent perhaps as the encroachments and depredations of the Indians. To overcome this tendency it was necessary to deal summarily with each offender, and justice was administered with a stern hand. Few laws were recognized, or even existed, but an inherent faculty of logic, based on common sense, together with the stern necessities of self-protection combined with the early American characteristic of fair play, formed the principles of justice as then administered.

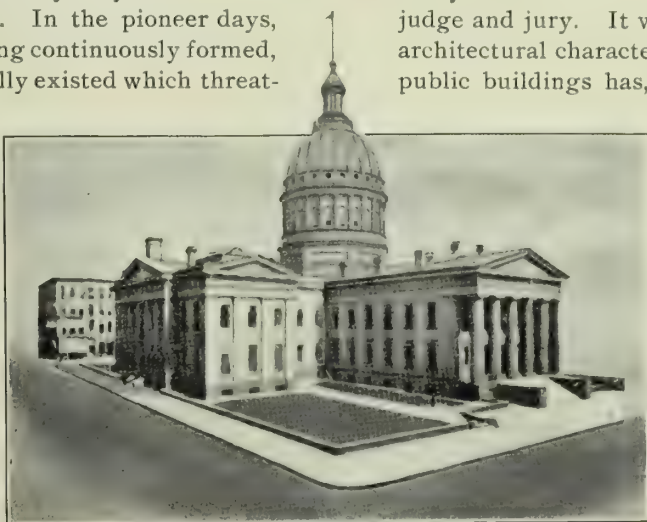
Thus our first courthouses came into existence, consisting usually of a crude log hut of a single apartment. Jails were seldom needed in those days, as there existed no sentimental prejudice against capital punishment, which was considered the only prompt and efficacious method of disposing of the guilty, as well as setting a wholesome example to others. As the settlements grew in importance and population, the schoolhouse and the courthouse kept pace with progress; and the latter gained all the more prominence owing to the interminable disputes and misunderstandings resulting from the government grants of land, and the difficulty of securing satisfactory titles to the various claimants.

As villages were transformed into cities the demand for all public improvements increased in proportion, and the church, the schoolhouse, and the courthouse grew relatively in importance, as became the dignity of civilized communities. Then came the conflict with the mother country resulting in an independent nation, and the various states were subdivided into counties, each county seat having its courthouse. Naturally the buildings began to assume more pretentious proportions, and the courthouse became the gathering point of the people from all the surrounding country, attracted as much by idle curiosity and the opportunity for political discussion as by the more serious interests to be settled by judge and jury. It will, therefore, be seen that the architectural character of our courthouses and other public buildings has, from the earliest days to the

present time, been proportionate to the growth and importance of the various communities. And yet, the simplicity and dignity which usually marked the buildings of colonial days, especially in New England and certain portions of the South, gave a charm and individuality to the architecture sadly lacking in many of our modern and more pretentious structures. One cannot but have an occasional feeling

of regret, and at the same time recognize the fact, that our architecture must necessarily keep pace with progress in wealth and prosperity.

A modest brick colonial courthouse, with its simple and dignified portico of wood, needs the setting and surroundings, and even the atmosphere, to which it is adapted, being sadly out of place in one of the crowded thoroughfares of our larger cities, hemmed in by ruthless and ungainly skyscrapers. Due allowance must also be made for the steadily increasing demands for space and expansion, and our modern courthouse of the average requirements must, therefore, of necessity be radically different from its simple and charming prototype of colonial days. At the same time certain fundamental principles governing the successful design of any building of a public or monumental character should be



THE OLD COURTHOUSE AT ST. LOUIS.

closely adhered to. Every effort should be made to frankly express its purpose, both in plan and exterior. The site and its surroundings should be carefully considered, and the character of the building conform to local conditions, with a view to making the most of the material at hand.

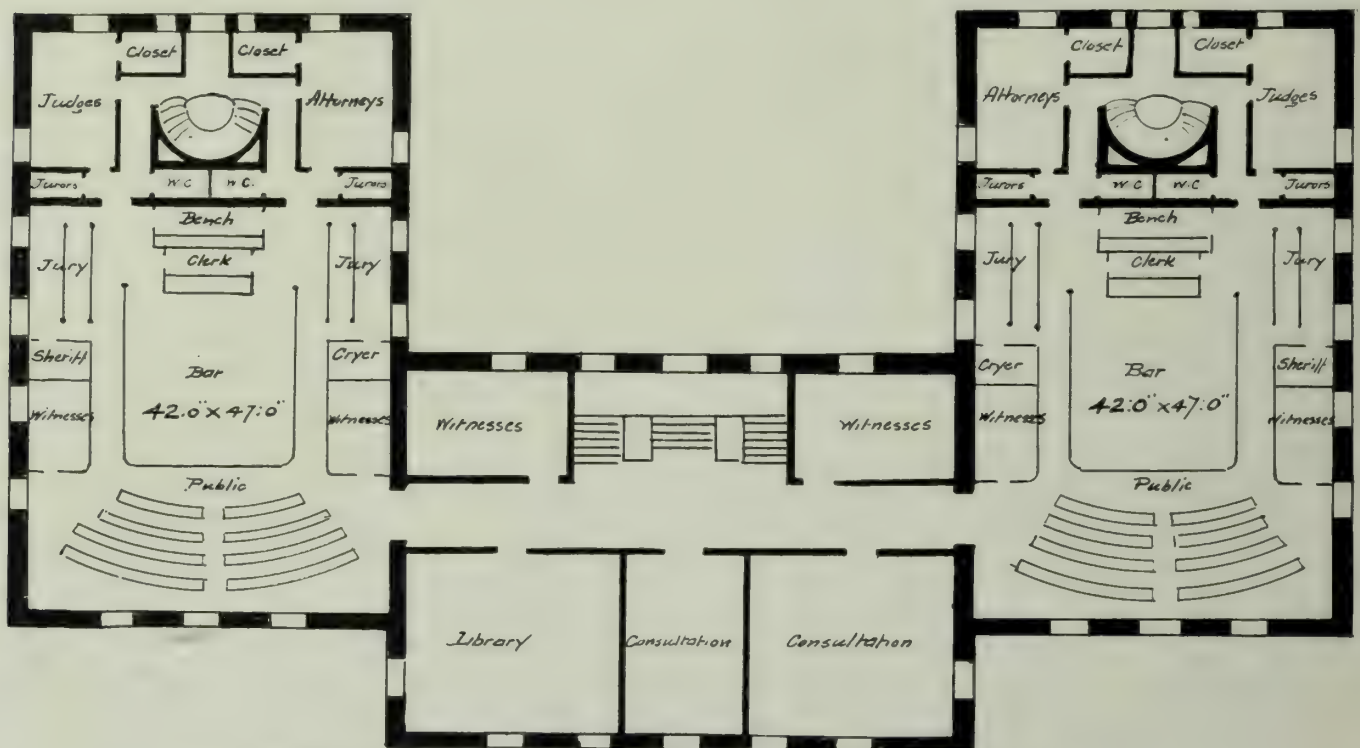
The study of the approaches should not be neglected, nor postponed until the building is completed,



THE OLD MIDDLESEX COUNTY COURTHOUSE AT EAST CAMBRIDGE, MASS.

features of the interior to which they give access. The circulation of halls and corridors should be direct and unmistakable, leading without confusion or unnecessary distance both to the staircases and elevators as well as to the various departments of the building.

After observing these preliminaries, which are more or less general in character, it may be in order to consider the more



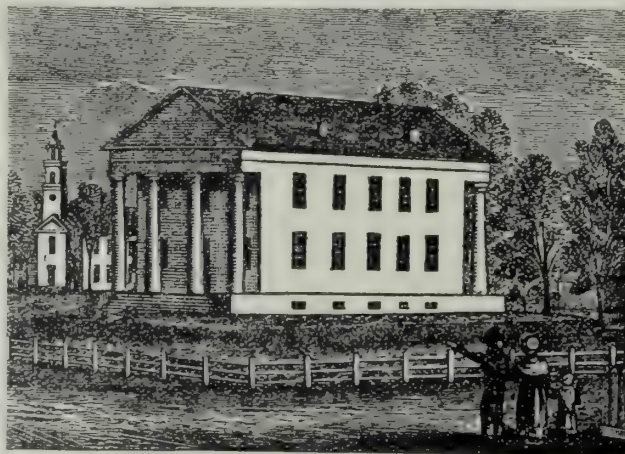
COURTROOM FLOOR, MIDDLESEX COUNTY COURTHOUSE, EAST CAMBRIDGE, MASS.

on the plea of economy or lack of time. An appropriate setting to an otherwise beautiful building is often hopelessly sacrificed and lost owing to a lack of that attention to this important feature at the beginning, which might have proved its necessity and secured its adoption.

The nature of the site and its surroundings should also, to a certain extent, determine the distribution of the entrances to the building, all of which should be governed by the importance of the streets upon which they face, and the

salient and distinctive features relating particularly to the average modern courthouse. These requirements will necessarily vary largely with the locality and the population, and the extent of territory which the building is intended to serve, and must, in any case, be governed by the amount of funds available.

Reference to two distinct types of buildings will perhaps serve as a partial illustration of general courthouse requirements; one, a county courthouse, and the other a combined



COURTHOUSE, 1829.

courthouse and postoffice building for the United States Government.

The county building, with the exception of jail quarters in the upper story, is devoted exclusively to court purposes, with the usual county offices in conjunction therewith. The first or ground floor contains those departments whose business directly concerns the public, namely, the recorder of deeds; surrogate's offices, where wills are probated and registered; the auditor and tax col-

lector; and sheriff. In addition to these are the offices of the county clerk, and a large meeting room and offices for the board of county freeholders.

together with a judge's room adjoining each; also jury and witness rooms, offices of the prosecutor, a bar consultation room, and library.

On the third floor are two minor courtrooms for civil cases, each with its judge's room adjoining, together with additional jury and witness rooms, a jury dormitory with private toilet, and a room for the grand jury, the latter connecting directly with the prosecutor's offices on the floor below by means of a private stairway. This floor



COUNTY COURTHOUSE AT CAMDEN, N. J.

Rankin, Kellogg & Crane, Architects.

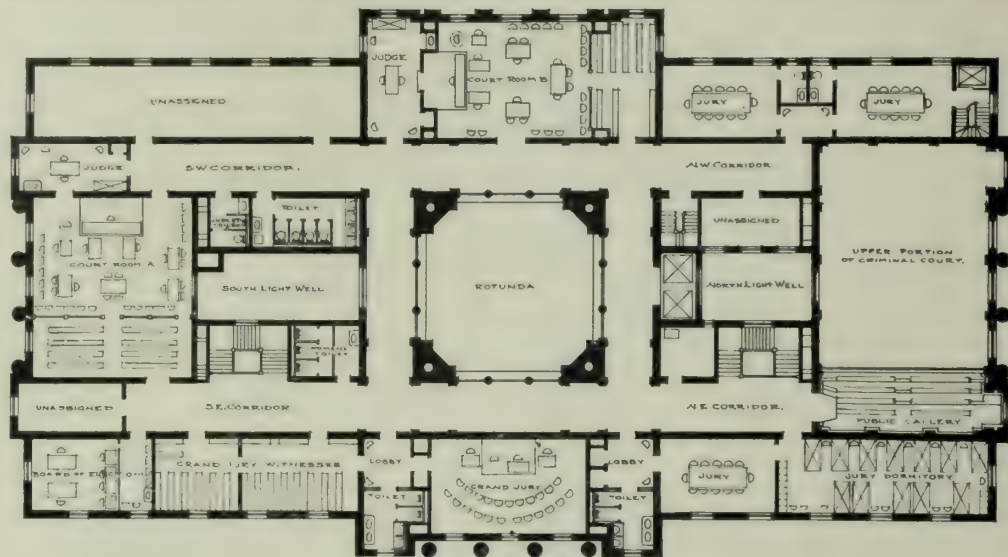
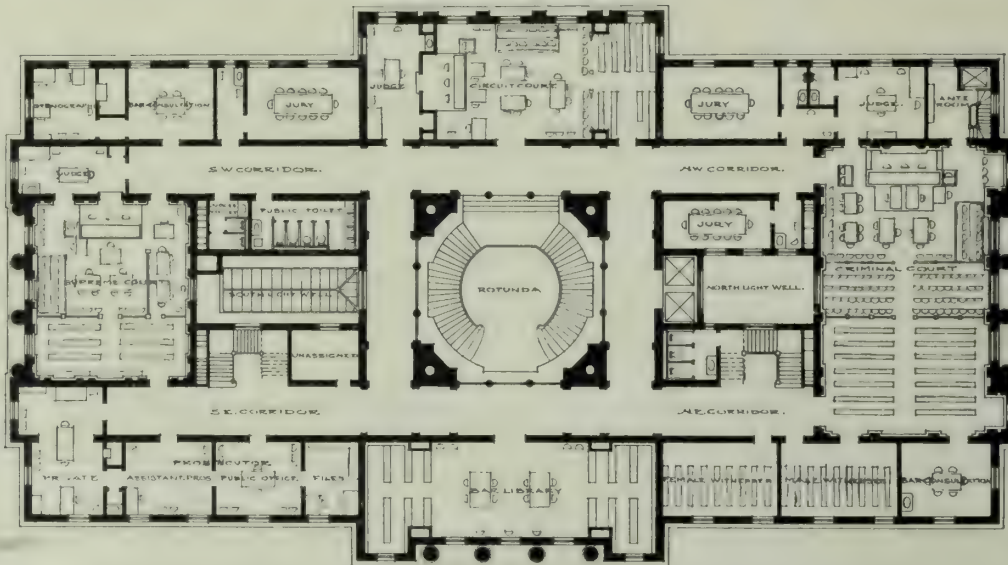
also contains a large gallery for the public opening into the criminal court below, which, on account of its size and importance, carries up through the two stories.

The top floor is devoted entirely to the jail, with space for about one hundred and fifty prisoners, in addition to offices for the warden and physician, a large kitchen, and an infirmary, together with suitable bath and toilet accommodations, both for staff and prisoners.

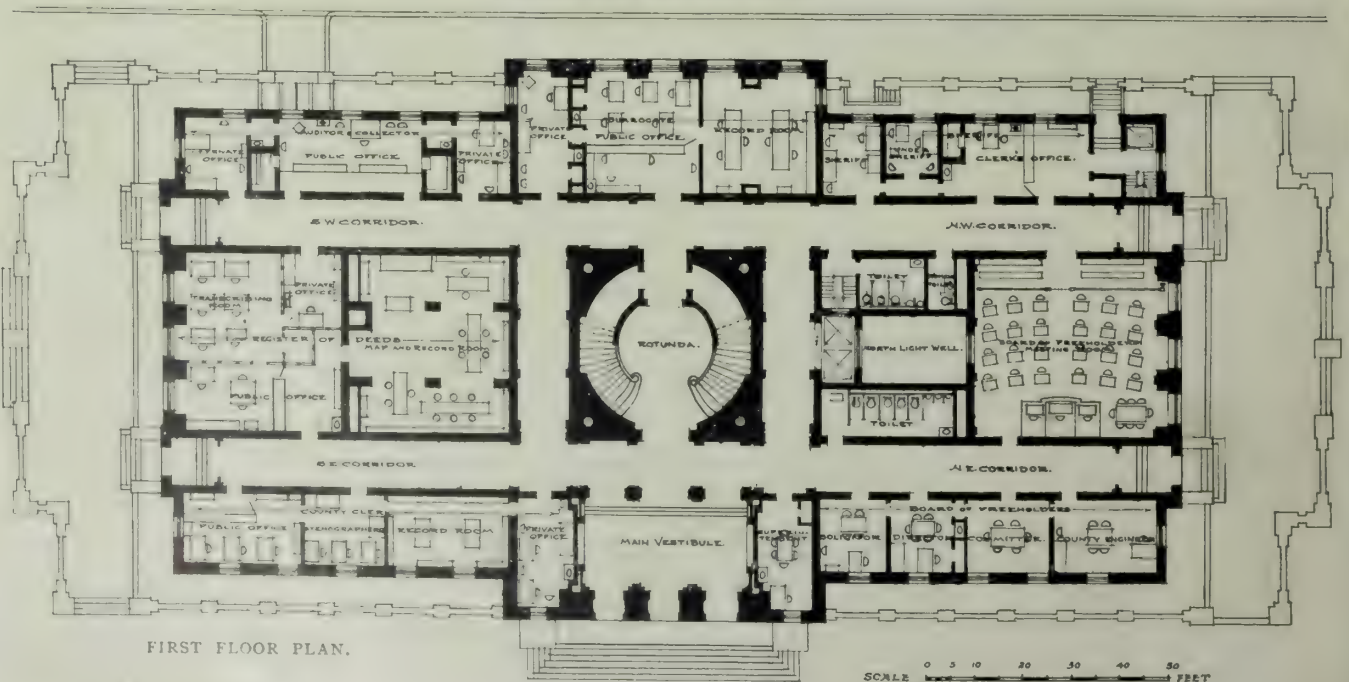
In the basement, directly below the sheriff's offices, is a large apartment for conducting sheriff's forced sales. This apartment is provided with a separate outside entrance, also an inside stairway connecting the sheriff's offices with the salesroom. Adjoining the sheriff's office is a receiving room for prisoners, with a separate private entrance opening on the most retired and least important street and connecting with a prisoner's stairway and elevator which communicates directly with the criminal court above, and continues up to the jail in the top story.

It does not, however, seem an ideal arrangement, either physically or morally, to combine a courthouse and jail in one building, and it was only for economic reasons that it was done in this case. It is probable that in the future there will be sufficient demand for additional space in the courthouse proper to justify the removal of the jail to a separate building, where it properly belongs.

The second floor contains the three principal courtrooms: the criminal, the supreme, and the circuit courts,

THIRD
FLOOR
PLAN.SECOND
FLOOR
PLAN.

FIRST FLOOR PLAN.



SCALE 0 5 10 20 30 40 50 FEET

COUNTY COURTHOUSE, CAMDEN, N. J.

Rankin, Kellogg & Crane, Architects.



UNITED STATES COURTHOUSE AND POST OFFICE BUILDING, INDIANAPOLIS, IND.

Rankin & Kellogg, Architects.

It seems hardly necessary to call attention to the importance of fireproof qualities in a modern courthouse. The nature of many of the documents, such as those pertaining to deeds and wills, is such that their loss or de-

The architectural treatment must also come in for its full share of careful study. Dignity and simplicity, well defined proportions, purity of detail, and appropriate material will all do their part towards securing a successful



COURTROOM, COURTHOUSE AND POST OFFICE, INDIANAPOLIS, IND.

struction would be indeed a serious matter. Careful attention should, therefore, be given to this feature, and the building so planned that the structural units are simple and straightforward, and the steel columns, beams, and girders amply protected throughout with suitable fireproof covering.

result. But to all these characteristics, which appear necessary, there must be added that inherent quality, difficult to describe, but always to be closely striven for, without which all efforts are futile, but which, when attained, will enable the observer to determine correctly the character of the building and the purpose of its erection.

COLOGNE CATHEDRAL CRUMBLING.

So much has been written of late about the unsafe condition of the cathedral at Cologne that the report of Dombaumeister Kertel, which was published in the *Zentralblatt der Bauverwaltung* will be read with interest. The report says that the building as a whole is sound and safe. The investigation has shown, however, that much of the outer part of the dome is in bad condition. Not only the ornamental parts, but the flat stone walls, have suffered more than even the experts knew. It is

remarkable, says the architect, that the signs of decay do not appear only on the very old parts, but are seen on those of the last century, and in some places which were repaired only twenty years ago there are unmistakable signs of decay. Nor are these ravages confined to one kind of stone. All the various kinds employed in the structure have been attacked, and the disintegration seems to begin not on the surface, but to work outwardly. The rapidity of the process is shown in the gallery on the north side, which is rapidly falling away, while five years ago it was intact.

The Department Store Plan.

BY JOHN LAWRENCE MAURAN.

PRIOR to planning the Grand Leader Department Store Building, herewith presented, it was the good fortune of the writer to make a voyage of discovery among the department stores of the country in company with clients whose sole object was to incorporate in their own plans the best ideas obtainable. We saw not only the innermost workings, but heard at first hand the details of each manager's pet hobby, and what follows must be judged in the light of the above preamble.

Probably no architect ever designed a department store unaffected by the hobby or caprice of his client, and while this statement is likely true of every class of work, it is here almost fundamental, for the department store proprietor, or manager, has of necessity studied what appeals most strongly to his particular class of trade, or has worked up into a feature the "meet me at the fountain" type of advertising dodge.

With this in view as accounting for divergencies between conclusions written and those expressed in the typical plans, the first considerations in sequence are:

First: Shape of lot and relation to principal abutting streets and alleys.

Second: Type of show window for combined display, first floor lighting, and summer ventilation.

Third: Character of trade — exclusive or mixed.

Fourth: Access to floors, including character and location of accessory appliances.

Fifth: Detail considerations of heating, ventilation, lighting plant, cash and bundle systems, etc.

Discussing these considerations sequentially, it may be said of the first, that here indeed the architect will find that each site presents its own particular problem, but in general his plan should be as nearly rectangular as possible, the entrances of ample size and duplication on the principal street fronts — one or more groups depending on the length of the façade and the importance of the thoroughfare. A casual study of resulting aisle arrangement will convince the client, as well as the architect, that a corner entrance is expensive in floor space, window effectiveness, and circulation of incoming and outgoing shoppers. The service and freight elevators, delivery entrances, and canopy should, if possible, be located on an alley or on the least important abutting street.

The floor plan should be as open and generous as possible, giving extensive perspectives unbroken by stairs, elevators, etc., and never marred by an irregular or eccentric columniation. The size of lot and type of construction must govern column centering, but the plan shown is close to accepted spacing.

The second consideration may provoke a heated argument between architect and client, starting with a matter of taste, but proof positive may be easily adduced to show that the unbroken shell of plate glass front has gone to stay. The best "merchandiser" recognizes the difference in dignity as well as the value of show window division, in the visible pier or column, and is ready to let his competitor indulge in the expanse of flimsy glass underpinning.

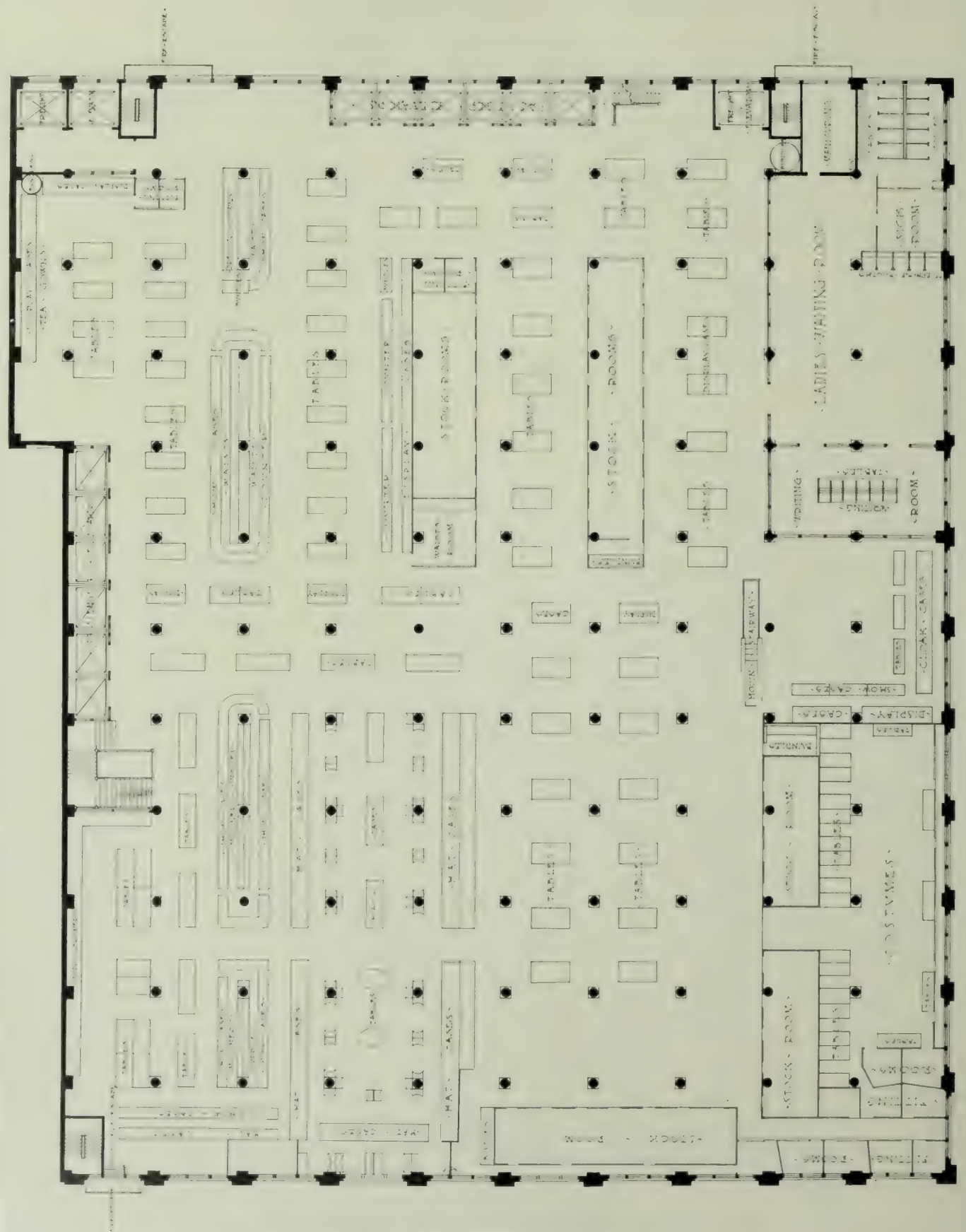
Many effective show windows are constructed without enclosures other than draperies concealing the back shelving, but in most of our cities atmospheric conditions enforce the need of tight wood or wood and glass enclosures, and reference to the plan will indicate the means of access for the window dressers, while intercommunication from window to window is maintained throughout the paneled false work at the rear of structural outside columns back of the heating and ventilating pipes which it conceals. The windows should have the single sheet of plate glass extend from an average of ten to eighteen inches above grade to a height of ten feet six to twelve feet above grade in order to secure ample transoms in first floor. These transoms should be hinged at the bottom and mechanically operated in series, for in summer weather no artificial ventilation can produce the necessary air movement. Ample plug socket capacity should be furnished for holiday display to supplement the accepted transom bar concealed reflector.

Even in our largest cities it is a serious question whether the highest class of trade can be catered to exclusively — the well to do spend much of the year out of town and it is conceded that the middle and poorer classes respond most quickly to the bargain sale advertisements, so it would seem safest to assume that the internal planning, the location of staple goods, the disposition of elevators, and the deft combination of refined appearance and atmosphere with those "features" which attract the bargain hunter without repelling the fastidious, will most successfully meet the requirements of our third consideration.

It is hard to over-estimate the importance of careful study under the next heading, for the life blood of a successful department store must course through all departments, i.e., the higher percentage of customers induced (not forced) to go to the upper floors, the more successful the plan. Generally speaking the basement should contain the cheaper grades of advertised bargains, ingress and egress to be furnished by broad, easy stairs either from the vestibule or from the main floor on the main entrance artery so as to interfere as little as possible with the general circulation, or by both. Elevators and escalators to the basement are of minor importance, but not so the upper floors to which they are indispensable.

Opinions differ widely as to the value of an escalator as a trade factor, but certain it is that the broad step type is practical as a novelty and a real relief to the elevator service on busy days. The escalator need ascend only and its usefulness seems to reach its climax at the third floor. Its location should be on the main cross aisle off the center where it will interfere as little as possible with the general perspective.

Stairs should never be featured to the extent of central floor location, but should be broad, easy, and attractive, adjacent to the elevators, and this brings us to the crux of the matter: In some stores otherwise successful elevators have been grouped radially out in the floor, destroying perspective, confusing passengers, and mutil-



THIRD FLOOR PLAN, THE GRAND LEADER DEPARTMENT STORE, ST. LOUIS.
Mauran, Russell & Garden, Architects.

ating the scheme of aisle circulation which must be maintained. Others have placed banks of elevators of few units near entrances with the hope of facilitating access to upper floors, and in some cases have placed them modestly behind tight partitions. A careful survey of the situation must lead to a very different plan. Unless the ground be nearly square and of considerable area one bank of as many units as possible located about the center of the long (perhaps blank) wall opposite the principal street will give the best results. With a square plan and two principal streets the accompanying plan seems to be the best commercial solution. The object is to lead customers seeking upper floors past as many display counters as possible to an ample number of elevator units where they can get quick service without suffering the annoyance of being hustled from one over-worked bank to another equally crowded. Most shoppers are not clever, and everything must be made clearer than daylight so this one large bank (or two at the most) becomes familiar by usage and should be evident to the stranger by having a polished wire glass enclosure through which the cars may be seen and each attractive floor be revealed, in passing, to the occupants. Every safety appliance on the elevators is money in the owner's pocket.

Much might be written covering the multitude of matters under the fifth heading which at best can only be treated here more or less superficially. Every department store should be sprinkled (the system either exposed or concealed by a suspended ceiling) and ample fire escapes provided, preferably of the enclosed concrete stair type shown on the plan. If power or heat cannot be secured from outside service companies, it seems unwise to encroach to the necessary extent on the valuable basement space, but rather to locate the plant in a sub-basement, or better still — as was done in the building here shown — place it under a separate roof across the street. Here is generated the steam for operating the dynamos for lighting, elevator, ventilating motor, tube system motor, etc., while the exhaust is used for heating. A large storage battery has been found economical for lowering the elevator peak and for elevator and scrub service lighting after hours. A large coal supply either at hand or nearby is essential to avoid shutdowns.

Artificial ventilation for at least the basement and first floor is essential, and so much data exists that no further comment is necessary except a word of warning that the client usually expects too much in the way of cooling in hot weather, for it is impossible to produce the cooling effect of air movement, even though the temperature be lowered, except by dangerous and expensive induced cold draughts — hence the previous reference to the need of transom auxiliaries in the first floor. The resulting dust practically prohibits them in the basement.

The open light well is almost the only opportunity presented for a display of the designer's skill on the interior, but truth compels the writer to state that its value seldom offsets the tremendous fire risk and loss of floor space.

It is a self evident proposition that the top floor should contain the stock room and almost equally axiomatic that on the next floor below may be located an attractive and well conducted restaurant, for no other lure is so certain

to tempt the suburban or "professional" shopper up through the departments requiring this publicity. The location of the writing room, manicure, and hairdresser, as well as the office gives opportunity for multiplying the effectiveness of this device.

The hospital rooms with physician and trained nurse have passed from the novelty to the necessity stage in the larger department stores. Not only must the shopper be furnished free with all the comforts of home in the modern store, including public telephone service, but the home staying purchaser must be permitted to order by telephone from the clerk in each department, so this individual counter telephone service is no less important than the modern bundle wrapping and cash register station localized in every store unit. The necessity of ample, attractive lavatories for men and women customers on almost every floor is second only in importance to the obvious economic need of the same local accommodations for employees. The saving of time is the saving of money and so it is as essential also to provide separate elevator service and a special restaurant for the employees, as it is to have automatic dummy elevator service for the replenishing of stock, and the spiral package chute to the delivery room.

It is obvious that the concentration of the freight and employees' elevators, the dummies, chute, and other service accessories should be located on or near the service street or alley, for speed is a competitive argument. Unless the abutting streets are highly congested, or all of great importance, it is seldom economical to have stock or delivery wagons enter the building — the most effective handling being by freight elevator after unloading, to the stock room, thence by freight and dummy to the selling floor, thence by chute or freight to the package room where distribution is made into the wheel trucks or "buggies," these in turn being raised to the shipping platform by a sort of freight escalator combined with fixed stairs, while a one story lift takes care of furniture and other bulky goods.

Outside the universal ice water system there are so many details of special problems which happily are not universal, such as the photograph gallery, cold storage for furs, and soda water fountain, that it seems unnecessary to dilate upon them, while artificial store lighting and other technical problems have been admirably treated in many available papers.

Each store is after all a special problem, but it is hoped that the solution may be assisted at least by the experiences herein recorded.

HARTFORD has done even more than erect the largest and finest stone arch bridge in the world. By this improvement it has gained a remarkable riverside park half a mile in length, lying thirty-five feet above the water and serving as an approach to the bridge. From this promenade a fine view of the Connecticut River northward and southward is obtained; but that which delights the Hartfordites is that the worst tenelements of the city have been removed to make way for this beautifying of the riverside. Hartford's example may well be followed by many other municipalities in America, and that rare possession for a town, a waterside park with fine building sites behind it, obtained.

English Brickbuilders.

THE WORK OF R. WEIR SCHULTZ.

ANYONE familiar with the architectural profession of to-day will know that deep reading, erudite research, painstaking measurement, diligent study of old work, do not necessarily result in the production of good design, even when associated with initial aptitude and ability. There are many names that remind us of that fact very forcibly — names of men whose ability is unquestioned, men who have had a university training, men who are wide in their knowledge though narrow in their sympathies. The reason is, perhaps, to be found in the self-consciousness of these architects, which commits them to such productions as are considered "individual." In truth, this is no other than a cultured affectation, and it ends in failure. A certain proportion of architects, however, trained in this school of thought, do rid themselves of the taint — possibly through an intelligent intimacy with good construction as well as a cultured knowledge of design. Mr. R. Weir Schultz is one of these men; an architect, moreover, whose work is the more surprising, when we remember that he had devoted great study to archæology and ancient architecture — particularly that of the Byzantine period. As a rule, when an architect becomes wedded to archæology

in any form, he lapses into vagaries, loses touch with the present, and stifles his natural tendencies, in the excessive study of the past. That fault is nowhere displayed in Mr. Schultz's work. It is essentially modern, while scholarly, broad in treatment, eminently adapted to its needs; displaying, too, an appreciation of the craftsman's work, whether in wood, plaster, or brick. His houses are essentially English in feeling. They suit their environment; they do not shout at you; they compose well and they are planned in a manner that does not engender the thought that architect and client have been at greatest pains to do everything in the opposite way to what is considered usual by the ordinary sane man. This is a point that needs emphasizing, because in the work of some architects who have achieved a sort of reputation there is an incessant display of modulated eccentricity.

Mr. Schultz is very happy in his general schemes and in the design of his brickwork detail, and the results which he has achieved by the contrivance of small embellishments with plain bricks used in many novel ways are most pleasing. The accompanying illustrations clearly show this.

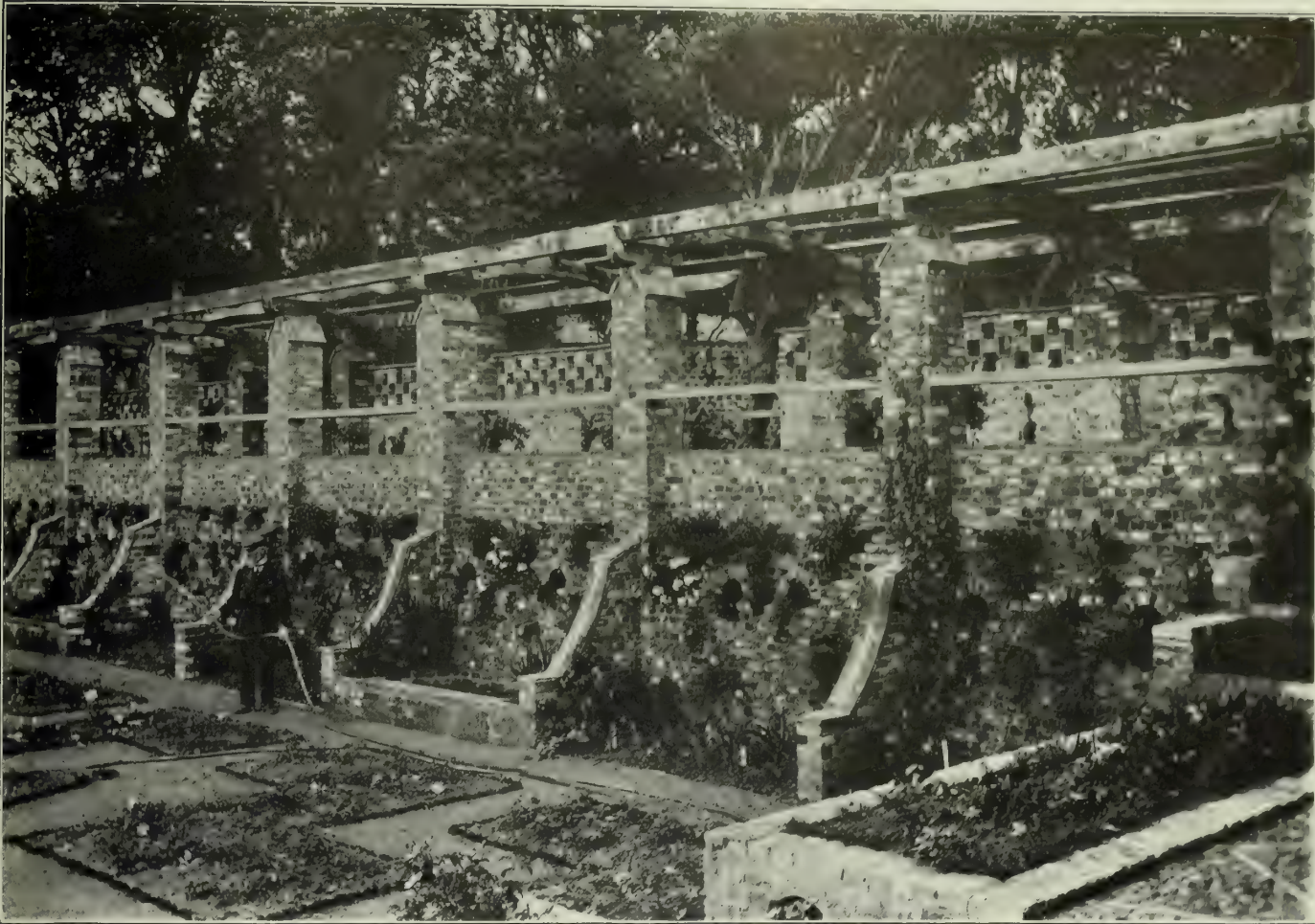
Pickenham Hall, a large country house in Norfolk, is



UNIVERSITY SETTLEMENT HALL, CARDIFF.



ENTRANCE FRONT, PICKENHAM HALL, NORFOLK.



GENERAL VIEW OF PERGOLA, HOUSE AT FELIXSTOWE.

a typical example of his work. The whole is carried out in red brick, running five courses to the foot, the roof being covered with red tiles, hand-made in the old manner. Over the entrance are figures and carving in stone, this work having been modeled from the architect's sketches. The whole design is sturdy in effect, while the variety in some of the brick enrichments is astonishing. The total cost of this house was about \$100,000.

Another good example of Mr. Schultz's work is the house at Hever, "How Green." This has been erected on a site overlooking the valley of the Eden, the plan being the outcome of the requirements to get as much sun as possible into the rooms. The walls are built of red bricks, with tile-hanging and roof tiles. The windows have oak frames and leaded lights, the balcony and porch are of oak, and there is an oak staircase, with oak linings to walls of same and of the hall. In the hall is an interesting fireplace of brick, with some old tiles introduced effectively. With the exception of some

modeled plaster friezes in the library, drawing room, and dining room, and some carving to chimney-pieces, the interior of the house is finished quite simply. The garden is a notable feature, having been laid out from Mr. Schultz's design. It is a very pleasant place, and makes the scheme complete.

Mr. Schultz, it may be mentioned, gives special attention to his garden schemes, recognizing how essential it is that the surroundings of the house should be included in the architect's design, in order that an harmonious result may be secured. As one of many examples, we may turn to the pergola which has been erected under his direction at a house at Felixstowe; and in particular we may note the scheme of a water basin carried out with brick, shells, bottle-ends, and drain-pipes, which occurs in the length of this pergola; the treatment is novel and effective both in form and color.

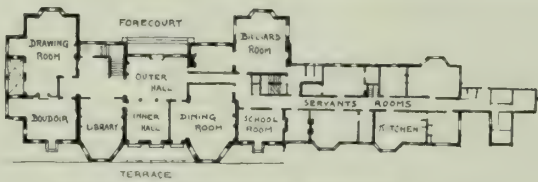
At Tylney Hall Mr. Schultz has carried out a considerable amount of work, included in which is



WATER BASIN IN PERGOLA, FELIXSTOWE.



GARDEN FRONT.

PICKENHAM HALL,
NORFOLK.

DETAIL OF FRENCH WINDOW AND HOOD.



DETAIL OF EAST ELEVATION.



SOUTH FRONT, "HOW GREEN," HEVER, KENT.

a high water tower, built of brick, with half-timbering in the top portion and a thatched roof, while numerous other treatments in the garden testify to the vigor and variety of his design.

A curious little building is the University Settlement Hall at Cardiff, which has been erected in connection with the dockers' movement. A very plain and cheap building



PLAN, "HOW GREEN."

was required, and this Mr. Schultz has provided, securing also as much architectural quality as was possible in the circumstances. The hall accommodates six hundred persons and cost \$9,000. The walls are of red bricks, pointed inside and out, having in the gable at the front a small panel by Mr. W. Goscombe John, A. R. A. It is the roof, however, which attracts chief attention.



HALL FIREPLACE, "HOW GREEN."



DETAIL OF BAY WINDOW, SCALERS HILL.



WATER TOWER, TYLNEY HALL.

This is built up of deals of small scantlings bolted together and carrying boarding, which is covered with felt and laid over with tiles. This is a very economical form of roof and Mr. Schultz has used it in other small halls, such as the village hall and reading room at Shorne.

These few notes, with the accompanying illustrations, serve to indicate the character of Mr. Schultz's work. It is preeminently English (though the architect happens to be Scotch) and while based on the models which add so much charm to the English countryside is full of fresh life and imbued with modern feeling.

The houses, moreover, are eminently suited to live in as well as to look at, and are free from those foibles



GARDEN GATEWAY, TYLNEY HALL.

which so frequently mar the work of architects of outstanding ability.

THE GOVERNMENT TO TEST CLAYS AND BURNT CLAY BUILDING MATERIALS.

AN investigation of clays and clay products needed in Government work is to be undertaken at once by the United States Geological Survey, Technologic Branch. A ceramic section has been created, with A. V. Bleining of Champaign, Illinois, as ceramic chemist.

This is an important extension of the structural materials investigations which have been carried on for several years with a view to determining the nature and extent of the materials belonging to or available for use in the building and construction work of the federal

Government and how these materials may be used most efficiently.

With the growing scarcity of timber and the consequent increase in price, federal officials in charge of the construction work, which now amounts to \$40,000,000 annually, have been looking about for desirable substitutes, such as clay products. The enormous fire losses of the country have also been an incentive in this direction, the federal engineers realizing more than ever before the need for more definite knowledge concerning the fire resisting properties of structural materials. All this has led the Government to take up a general investigation of the clays and clay products.

The importance of the clay industry is seen when it is realized that the value of such in 1907 was \$149,697,000, a gain of fourteen per cent over the previous year.

Mr. Bleining, the ceramic chemist, in speaking of the plans for the work of his section said: "First, it is intended that it should do the testing of clay products such as common and pressed brick, paving brick, hollow tiles and conduits, sewer pipe, fireproofing, terra cotta, enameled bricks, and glazed tiles, floor and roofing tiles, fire brick, electric porcelain insulators, and other structural goods submitted for this purpose by the construction bureaus of the Government. Though standard tests of most of the above materials do not exist as yet, the work of the division would tend to fix and unify the methods of testing of the burnt clay products, thus insuring the highest quality of ware obtainable in the industry for the construction work of the Government. It is in no way intended that the testing be done arbitrarily without due regard to the just claims of the manufacturers, but it is proposed to aim for results beneficial to both the Government and the conscientious manufacturer.

"The second part of the activity of the new section is to consist in evolving standard tests of clays for the purpose of determining the use to which they are best suited, thus assisting in the development of the clay resources of the country and avoiding the great money losses caused by ill-advised investments in low-grade clay properties. This field is an extremely important one and was urged upon the United States Geological Survey by the American Ceramic Society and the National Brick Manufacturers' Association, the two leading organizations devoting their attention to these lines.

"The standardization of clay testing is proposed to be carried on in cooperation with the English and German investigations so that finally international standards may be adopted.

"The third class of work to be entered upon deals with the general manufacturing problems, the solution of which would mean the elimination of much loss, or would lead to greater efficiency and perfection. There might be mentioned the important question of 'white wash' or efflorescence appearing on brick walls, a difficulty causing serious annoyance and loss to manufacturers and users of bricks by marring the beauty of many structures.

"In all of these investigations the Survey will consult with an advisory committee composed of a number of leading clay manufacturers and technologists, so that the needs of the industries will be served in the best manner."



HOUSE FOR AMOS L. SCHAEFFER, ESQ.

ENGINEER OF PUBLIC SERVICE COMMISSION, NEW YORK CITY.
SQUIRES & WYNKOOP, ARCHITECTS.

As shown by the illustrations the walls of this house are built of hollow tile terra blocks with stucco finish on the exterior.

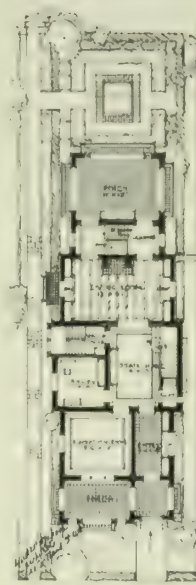
The foundation walls to grade are of local stone.

All walls up to the second story level are 10 by 12 by 12 hollow terra cotta tile. These are laid on end and figured twelve inches including joint. Story heights are therefore in even dimensions of feet. These blocks are so made that they can be broken in six inch lengths. The second story construction is similar except that the tiles are eight inches thick instead of ten inches as in the first story walls. In this house there are three interior bear-

ing walls and the framing is parallel with the long dimensions of the building for end sections and parallel with short side for middle section.

All openings are formed with 2 by 4 studs as a rough nailing for wood door jambs and to form the bottom of concrete lintels and these studs are left in place. The window openings are not rebated, but the window box shows complete on the exterior and has a head the same width as the jamb. It is secured in place by nailing to wood blocks in the tile wall. The joint is packed with oakum and has given no trouble. The trim on the inside covers the joint and a mold on the outside covers the stucco joint.

The exterior walls have a finish-



ing coat of stucco in the water of which is mixed ten per cent Anti-Hydro waterproofing. The interior walls were waterproofed with a coat of Universal Compound waterproofing, and the plaster for the finish was applied directly to the tile.

The dining room, living room, and hallways are wainscoted or decorated with woodwork which is secured to wooden nailing blocks put into the tile walls before plastering.

The architects of the building have built several houses of this type, and have found that they can build more easily and quickly than with other materials; that the walls are in all respects weatherproof, and that it is a comparatively inexpensive construction. The average cost for ten houses which they have built is 21 cents per cubic foot.

A HOUSE BUILT OF HOLLOW TILE TERRA COTTA BLOCKS WITH EXTERIOR FINISH OF STUCCO.

Editorial Comment and Miscellany.

WOOD STILL PRINCIPAL MATERIAL USED IN BUILDING CONSTRUCTION ACCORDING TO GOVERNMENT REPORT.

Great as the advance in fireproof construction has been during the last ten years there has been no letup in the use of lumber, and both architects and builders find themselves so dependent on wood to-day that they are compelled to admit that the forests of the country are likely to be the chief source of building material for many years to come.

"The use of cement, terra cotta, brick, and stone, with a framework of steel, will make it possible soon to do away with wood entirely," is a remark often heard, and, indeed, when one stands on lower Broadway and looks up at the towering skyscrapers, the statement seems to contain much truth. As a matter of fact, however, the popular idea that fireproof materials will do away with the need of using lumber in a comparatively few years is a very erroneous one. All of the various fireproof materials going into the approved construction of the more substantial buildings are used in greater quantities now than the world dreamed of a few years ago, yet the heavy demand for lumber continues.

That wood predominates is shown by the annual building records. Of the permits used for buildings erected last year, approximately 61 per cent were constructed of wood, and the remaining 39 per cent of fire resisting material, according to a report issued by the Geological Survey on operations in forty-nine leading cities of the country. These figures are the more significant when it is realized that they only represent the building activities in the largest cities; they do not take into account the construction of dwellings, stores, and other buildings in the thousands of small cities and towns scattered over



A FIREPLACE FACED WITH GRUEBY TILE.



CITY-INVESTING BUILDING, LOWER BROADWAY, NEW YORK.

Francis H. Kimball, Architect.

All the terra cotta work by the New York Architectural Terra Cotta Company.

and not included in the forty-nine cities on which the reckoning is made.

In towns and small cities wood is usually the predominating building material and it is safe to say that if the statistics had included figures for all places of whatever size, the percentage of wooden construction would have been much greater. These figures, as a rule, are only for the corporate limits, and the suburbs of these cities have each very large amounts to be added. The cost, also, is relatively higher in these cities than in towns nearer the base of the supply.

A MORE BEAUTIFUL BOSTON.

Within a comparatively short time the Charles River basin will be usable for the newer purposes for which it has been made, and when the new roadway on the southern side is completed and provision is made for permanent headquarters for aquatic sports and for pleasure craft, then it will be shown whether Bostonians are alive to an unrivaled opportunity which nature, applied science, and the civic imagination of a few far-seeing citizens have provided for them. Certain it is that with completion of the basin an important new chapter in the improvement of Boston will have been written, and an example set that other American cities, similarly situated, are likely to imitate.

The record which Harrisburg, Cleveland, Buffalo, St. Louis, St. Paul and Minneapolis, Hartford and Springfield have made during the past few years in utilizing their river fronts for parks, boulevards, and fine residen-

tial districts shows that the era of relegating riparian lands wholly to commercial and transportation uses has passed. Had foresight and wealth come earlier the expense of the process of restoration and appropriation would have been less to taxpayers. But cost what it may, the high-grade American city of the future will not

be reconciled to factories and tracts where parks and driveways should be. Commerce will have to share the territory, more than it has in the past, with those who have in mind the promotion of physical health, municipal adornment, and the people's recreation.

THE Illuminating Engineering Society, organized to advocate systems of artificial lighting less destructive to the eyesight than the ordinary incandescent burner, recently held a meeting in the St. Gabriel's Park Branch of the Carnegie Libraries in New York. The building was lighted according to designs prepared by a distinguished member of the society and which have been adopted for the lighting of similar buildings in the future. Among the innovations may be named the following: A lamp for a reading table outwardly resembling the ordinary green-shaded burner, but provided with a reflector which equal-



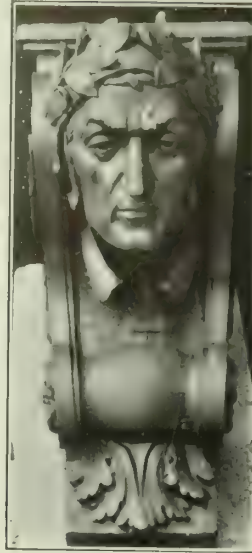
DETAIL BY CHICKERING & O'CONNELL, ARCHITECTS.

Atlantic Terra Cotta Company, Makers.



DETAIL BY DAWSON & McLAUGHLIN, ARCHITECTS.

Atlantic Terra Cotta Company, Makers.



DETAIL BY CHICKERING & O'CONNELL, ARCHITECTS.

Atlantic Terra Cotta Company, Makers.



DETAIL BY CLINTON & RUSSELL, ARCHITECTS.

Conkling-Armstrong Terra Cotta Company, Makers.

ized the amount of light, so that a book placed upon the outermost edge of the table received quite as much light as the one directly under the lamp. Another sort of reflector over the book racks makes the illumination there uniform, so that titles on the lower shelf may be read as easily as those nearest the light. An entirely different

arrangement is employed to light reading matter in a horizontal position from that in a vertical position. No incandescent lights are left unshaded; and there is a careful distinction made between local and general lighting so that no power need be lost in supplying general illumination where light is needed only for reading purposes.

MADISON Square Garden has been placed upon the market for sale. The stockholders, meeting November 12th, decided to bring to an end what they describe as twenty years of carrying the property *pro bono publico*, without a cent of profit to themselves. Of the three parts which comprise the building, the arena has been depended upon alone to carry the investment. Without it many of the events that have become institutions of the New York twelvemonth would have been impossible. The building was the first important



CHURCH OF CHRIST, SCIENTIST, SOUTH BEND, IND.
S. S. Beman, Architect.
Roofed with Ludowici-Celadon Tile.



DETAIL BY JARVIS HUNT, ARCHITECT.
American Terra Cotta Company, Makers.

a paying institution, it being too far removed, in their opinion, from the amusement seeking population and the main thoroughfares. From another point of view, a building with the function of an arena cannot earn an amount sufficient to justify such an outlay as the very ornate architectural character of the Garden and the cost of its central location have required. The fate of this, one of the most beautiful structures of New York or any other city, will probably be to afford a site for a purely mercantile building, occupying the whole of a once distinguished block.

ARTISTS' GUILD, ST. LOUIS.

This building which is illustrated in the plate form of this number is built of paving bricks laid up with big white joints. Green enameled bricks in English size, and orange colored faience, have been used in the pattern work of the walls.

BUILDING OPERATIONS FOR OCTOBER.

Building operations took a decided upward turn during the month of October. Official reports from some



DETAIL BY HELMIE & HUBERTY,
ARCHITECTS.
South Amboy Terra Cotta Company,
Makers.

work of the late Stanford White, and it was one of the first undertakings that gave impulse to the architectural improvement of New York. The more unfortunate, therefore, is the declaration of the directors that Madison Square Garden can never be made

fifty cities compiled by The American Contractor, New York, show an aggregate gain of 18 per cent, as compared with October, 1907. Twenty-six cities show an increase in building operations of from 2 to 236 per cent, and twenty-four show a decline of from 2 to 78 per cent. The principal gains were: Chicago, 25 per cent; Dallas, 52; Denver, 65; Des Moines, 46; Grand Rapids, 103; Mobile, 244; New York, 69; Philadelphia, 58; Salt Lake City, 55.

IN GENERAL.

Under the administration of the Board of Extension Teaching, Columbia University announces the beginning of its second year of Evening Technical Courses, which will include teaching in architectural draughting, architectural practice, architectural engineering, and history of architecture. These classes are intended for draughtsmen from and in and about New York — the object being to give a complete architectural education to those men who are unable to profit by regular courses in architecture at the universities.

The contract for the erection of the new passenger station of the Chicago and Northwestern Railway Company has been let to the George A. Fuller Company. The contract comprises the expenditure of approximately \$5,000,000, and stipulates that the new depot shall be completed within two years from the time work is begun. The station is to be one of the largest in the world, covering, with the train shed, ten acres of floor space devoted to the public use. Its total cost, inclusive of the cost of the ground upon which it will stand, will approximate \$20,000,000. The train shed will be 840 feet long and 320 feet wide, and will contain 16 tracks, each with a capacity of fifteen cars.

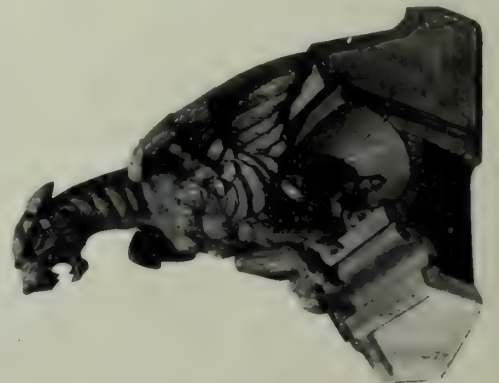
The house at 5 East 51st street, New York, Percy Griffin, architect, was by mistake illustrated on pages 199 and 203 of THE BRICKBUILDER for September. This house is owned by John A. Melcher, Esq., and is not one of the group of houses on West 74th street, which belongs to the Clark Estate, as it would appear from the illustration on page 203.

The Government has bought for \$450,000 a block immediately west of the new Union Station at Washington, and will use it as a site for the new city post office.

The first two of the new group of buildings for the Bellevue Hospital, New York, were put into use November 5th. They are known as



DETAIL BY SCHWARTZ &
GROSS, ARCHITECTS.
New Jersey Terra Cotta Company,
Makers.



DETAIL BY HENRY C. PELTON, ARCHITECT.
Brick Terra Cotta and Tile Company, Makers.



DETAIL EXECUTED BY ST. LOUIS TERRA COTTA COMPANY.

"Pavilions A and B," and together will accommodate about four hundred patients. The buildings were started in 1905, and their cost has been about \$1,000,000. McKim, Mead & White are the architects.

Augustus B. Higginson and E. Russel Ray have formed a copartnership for the practice of architecture, under the firm name of Higginson & Ray. Offices, McKay Building, Santa Barbara, Cal.

W. Siwart Smit, General Manager of the Twin City Brick Company, St. Paul, Minn., is making a tour of Europe for the especial purpose of getting new ideas for color, shape, and sizes of bricks.

The Twenty-third Annual Convention of the National Brick Manufacturers Association will be held at Rochester, Feb. 1 to 6, 1909. The headquarters will be at the new Seneca Hotel.

The Western Brick Company of Danville, Ill., has in four years increased its annual product from five to twenty-five millions. Their specialty is a medium priced facing brick.

They will place upon the market during the coming year a number of new shades. Their bricks are made from shale which makes them highly vitrified and impervious.

The Twin City Brick Company is now constructing a large stiff-mud plant for the manufacture of a new patent interlocking facing block. This material gives all the effect of terra cotta

and is manufactured in all the colors of their facing brick. The cost of construction with these blocks will be little more than that for frame. Architects and builders who have seen these blocks have expressed the opinion that this type of construction meets a demand which has existed for years. The new material will be placed on the market April 1, 1909.



DETAIL BY WILLIAM J. BRINKMAN, ARCHITECT.

Northwestern Terra Cotta Company, Makers.

TO DRAUGHTSMEN: I have an opening for a first-class man at designing and general preliminary work. Permanent position for the right man. R. H. HUNT, Chattanooga, Tenn.

WANTED. High class architectural designer, well up in modern designing and rendering and familiar with the best class of work in the smaller cities. State experience and salary expected and give references. FULLER AND PITCHER, Architects, Albany, N.Y.

INDOORS AND OUT. I have a complete file of perfect copies of *INDOORS AND OUT* (the 27 numbers issued) which I will deliver to any address in the United States for \$10.00. Money must accompany order. Address, I. C. O., care THE BRICKBUILDER.

A book that will assist you in the Hospital Competition

"The Organization, Construction and Management of Hospitals"

By MEYER J. STURM, Architect, Chicago, and

ALBERT J. OCHSNER, B.S., F.R.M.S., M.D.

Professor of Surgery, University of Illinois, Chicago.

The Cleveland Press, Chicago, Publishers.

A GOOD BOOK FOR EVERY LIBRARY

AN OPINION

"The Organization, Construction and Management of Hospitals" has been placed in our library, and I can say that we consider it a very valuable addition. I have had a good deal to do lately with hospitals in the way of caring for competitions, and I am very glad to have such authority to refer to as this work represents." F. W. Chandler, Boston, Mass. (Professor Chandler is the head of the architectural department of the Massachusetts Institute of Technology of Boston.)

600 pages, 7 1/4 x 10 3/4. 340 illustrations. Cloth bound, \$7.00.

Half morocco, \$8.00. Sent express prepaid on receipt of price.

Sold by M. A. VINSON

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CLEVELAND, OHIO

I WILL BUY "Brickbuilder," August, 1898, April, 1899. "Brochure Series," complete volumes or odd numbers. State price.



AN OFFICE BUILDING AT DETROIT.

Albert Kahn, Architect.

Exterior of Enameled Brick, Made by American Enameled Brick and Tile Company.

Competition for a Hospital Building.

First Prize, \$500.

Second Prize, \$200.

Third Prize, \$100.

COMPETITION CLOSES JANUARY 16, 1909.

PROGRAMME.

THE problem is a Hospital Building. The location may be assumed in any American city of about 30,000 inhabitants. The lot contains about five acres and has a frontage of 300 feet on the main avenue, leading to the city, which runs east and west. The part of the lot on which the building is to be placed is practically level.

It is to be a block hospital with three floors above the basement. The height of the first and second stories is to be not less than 12 feet. No one floor above the basement is to contain more than 10,000 square feet, exclusive of sun rooms and approaches. The length of the structure, including sun rooms and approaches, cannot exceed 160 feet.

The following should be provided for in the plan:

Two ten bed wards for each sex in the Medical Department; two ten bed wards for each sex in the Surgical Department; and in connection with each of these wards two one bed rooms. Two ten bed wards for each sex in the Children's Department. A Maternity Department to accommodate six patients, two of which are to be in private rooms, and in conjunction with this department a delivery room and baby room.

In conjunction with the wards there should be provided service rooms or diet kitchens, nurses utility rooms, linen rooms, broom and medicine closets, clothing rooms and toilet rooms.

In addition to the private rooms provided for in connection with the open wards there should be at least eight private rooms for single patients.

Operating and accident rooms, with their adjuncts of anæsthetic, sterilizing, bandage, instrument, nurses' work room, reception, and recovery rooms, also surgeons' dressing room and X-ray room.

Single bed rooms for at least twenty nurses; nurses' parlor; suite for superintendent and head nurse; bed room for two internes; reception room for patients; laboratory; drug room; cooking class room; kitchens; store rooms; laundry; bed rooms for fourteen domestics — four being males; dining room for staff and nurses; dining room for domestics; toilet rooms; small out-patients department; autopsy room; boiler room; fan room, and such other features as may suggest themselves to the designer.

The exterior of the building is to be designed entirely in Architectural Terra Cotta, employing colored terra cotta in at least portions of the walls.

The following points will be considered in judging the designs:

- A. Frank and logical expression of the prescribed material.
- B. Rational and logical treatment of the exterior.
- C. Excellence of plan.

In awarding the prizes the intelligence shown in the constructive use of terra cotta and the development or modification of style, by reason of the material, will be taken largely into consideration.

It must be borne in mind that one of the chief objects of this competition is to encourage the study of the use of Architectural Terra Cotta. There is no limitation of cost, but the designs must be suitable for the character of the building and for the material in which it is to be executed.

DRAWINGS REQUIRED.

On one sheet, at the top, the front elevation drawn at a scale of 8 feet to the inch. In the title of this elevation state which point of the compass it faces. On the same sheet, below the front elevation, the four floor plans drawn at a scale of 16 feet to the inch.

On a second sheet, at the top, the elevation of secondary importance drawn at a scale of 16 feet to the inch; immediately below half inch scale details of the most interesting features of the design. The details should indicate in a general manner the jointing of the terra cotta and the sizes of the blocks. The color scheme is to be indicated either by a key or a series of notes printed on the same sheet with the secondary elevation and details, at a size which will permit of two thirds reduction.

The size of each sheet (there are to be but two) shall be exactly 36 inches by 24 inches. Strong border lines are to be drawn on both sheets one inch from edges, giving a space inside the border lines 22 inches by 34 inches. The sheets are not to be mounted.

All drawings are to be in black ink without wash or color, except that the walls on the plans and in the sections may be blacked-in or cross-hatched.

Graphic scales to be on all drawings.

Every set of drawings is to be signed by a *nom de plume* or device, and accompanying same is to be a sealed envelope with the *nom de plume* on the exterior and containing the true name and address of the contestant.

The drawings are to be delivered flat at the office of THE BRICKBUILDER, 85 Water Street, Boston, Mass., charges prepaid, on or before January 16, 1909.

Drawings submitted in this competition must be at owner's risk from the time they are sent until returned, although reasonable care will be exercised in their handling and keeping.

The prize drawings are to become the property of THE BRICKBUILDER, and the right is reserved to publish or exhibit any or all of the others. Those who wish their drawings returned may have them by enclosing in the sealed envelopes containing their names, ten cents in stamps.

The designs will be judged by three or five well-known members of the architectural profession.

For the design placed first in this competition there will be given a prize of \$500.

For the design placed second a prize of \$200.

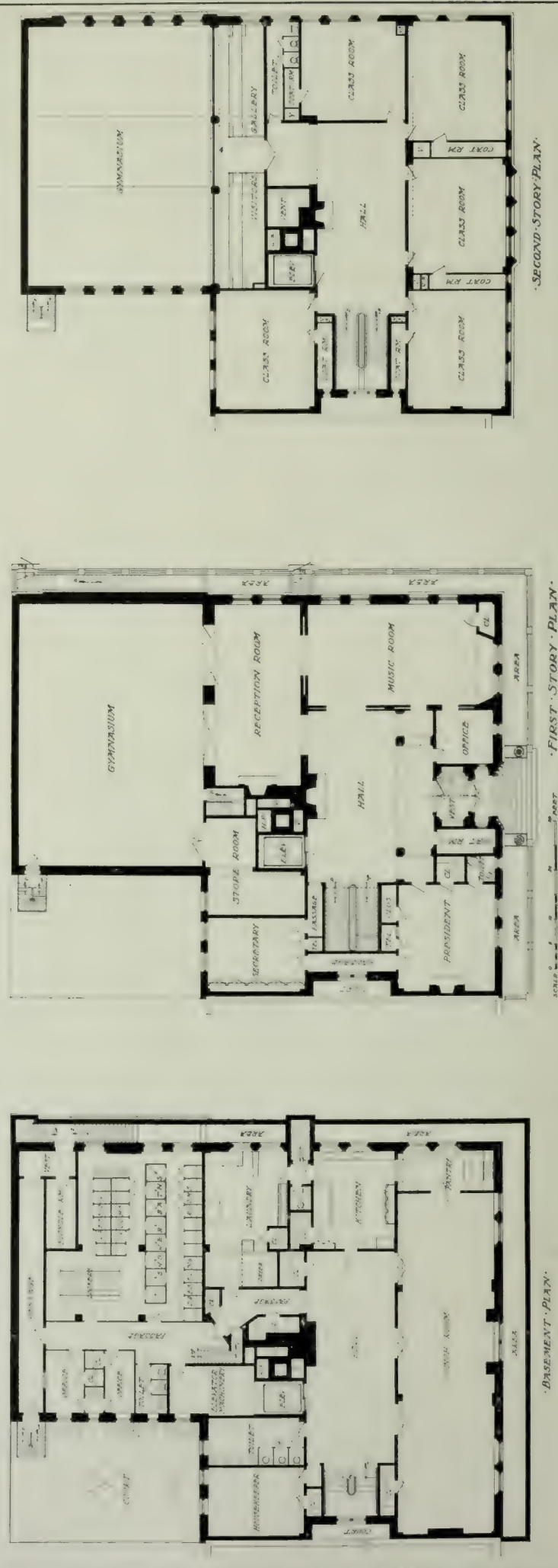
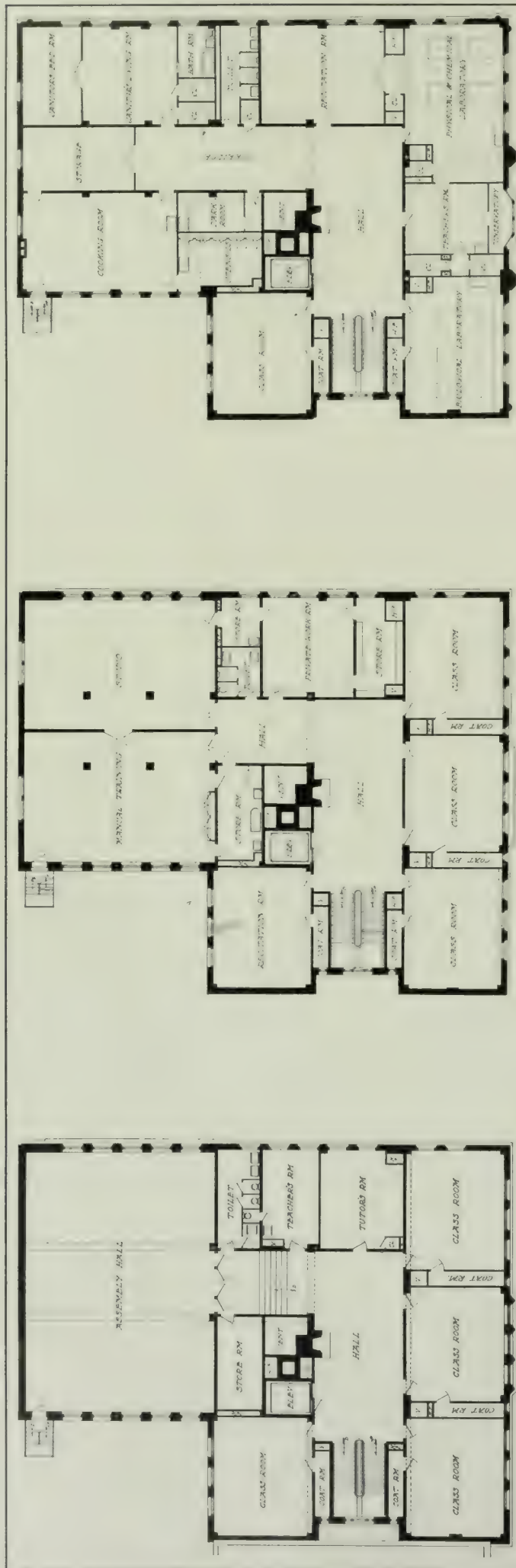
For the design placed third a prize of \$100.

We are enabled to offer prizes of the above-mentioned amounts largely through the liberality of the terra cotta manufacturers who are represented in the advertising columns of THE BRICKBUILDER.

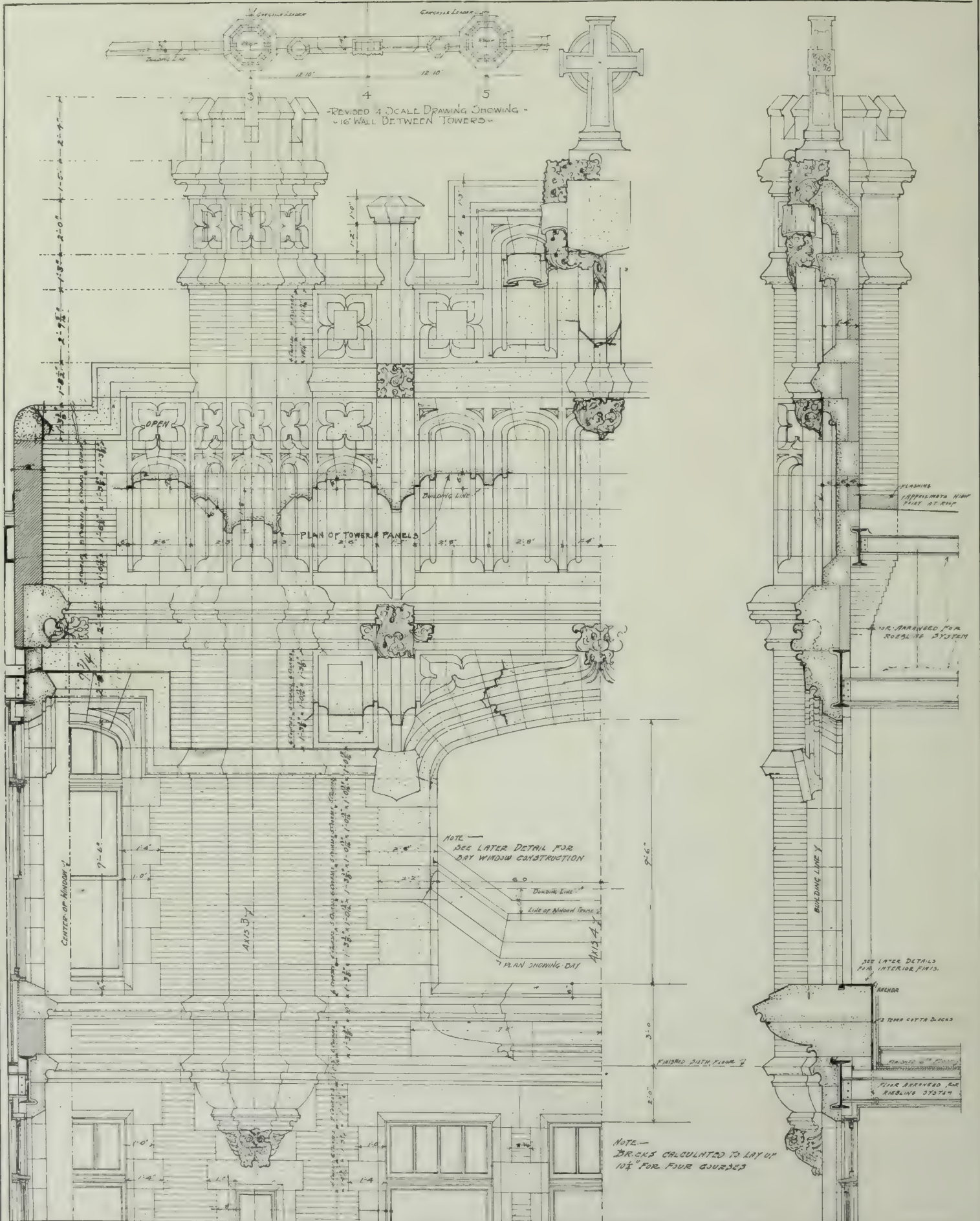
This competition is open to everyone.



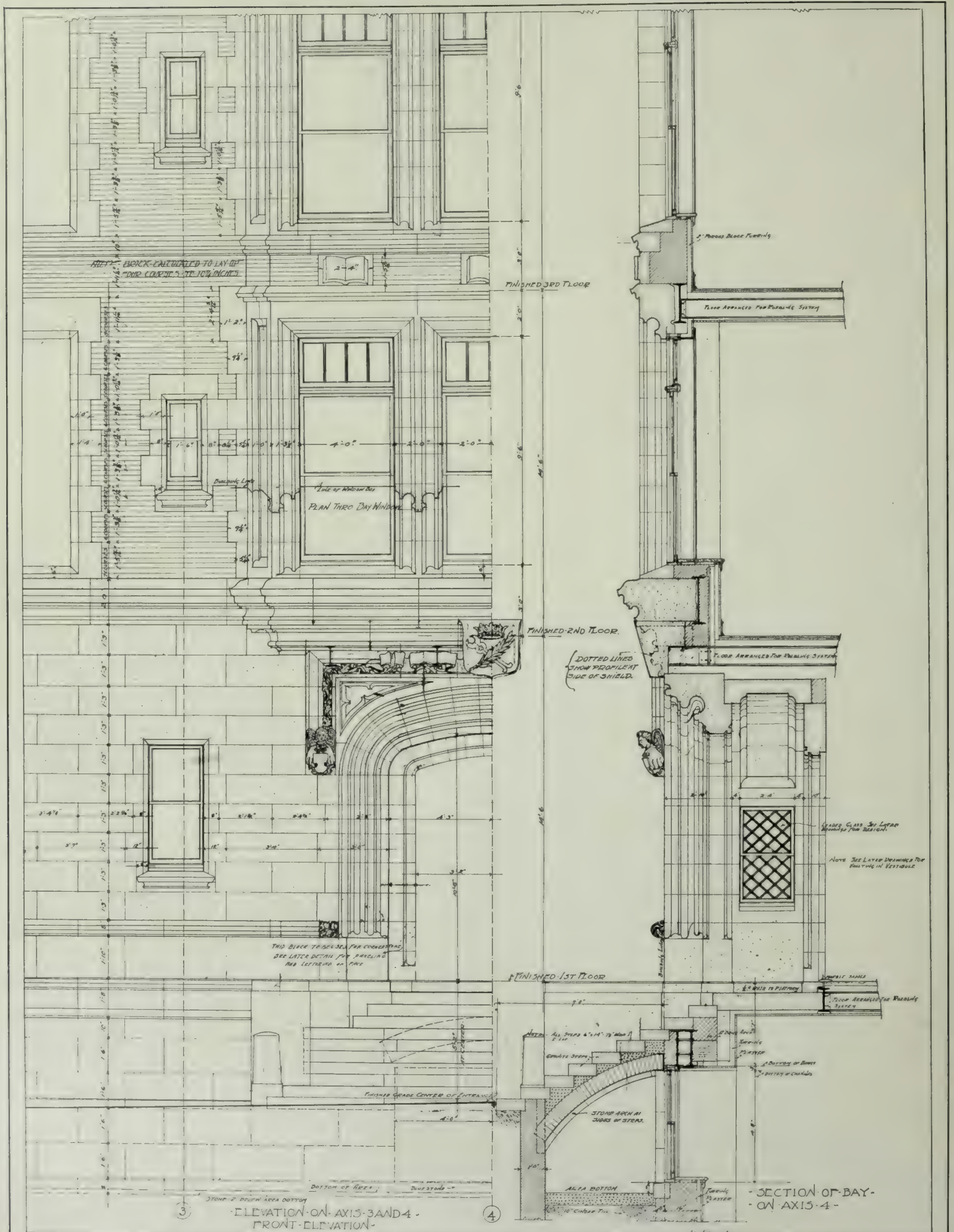
ST. AGATHA SCHOOL, EIGHTY-SEVENTH STREET AND WEST END AVENUE, NEW YORK.
WILLIAM A. BORING, ARCHITECT.

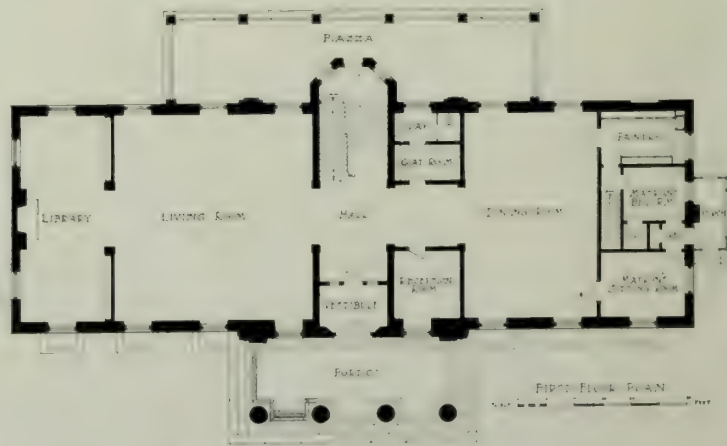
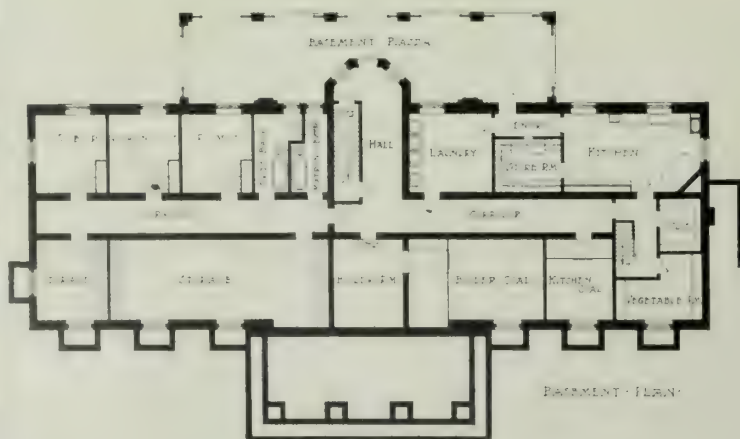
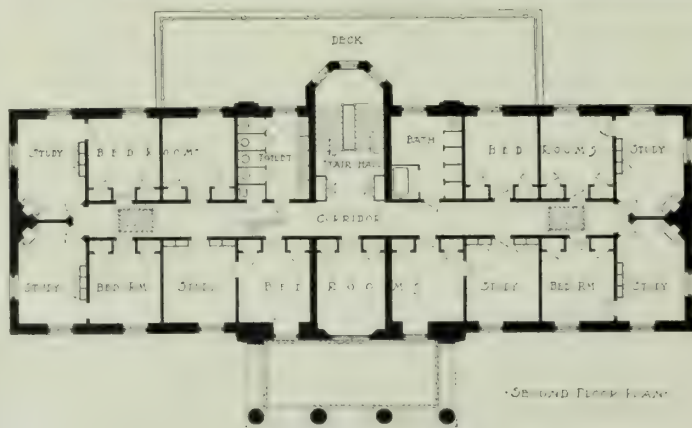


FLOOR PLANS, ST. AGATHA SCHOOL, EIGHTY-SEVENTH STREET AND WEST END AVENUE, NEW YORK.
WILLIAM A. BORING, ARCHITECT.



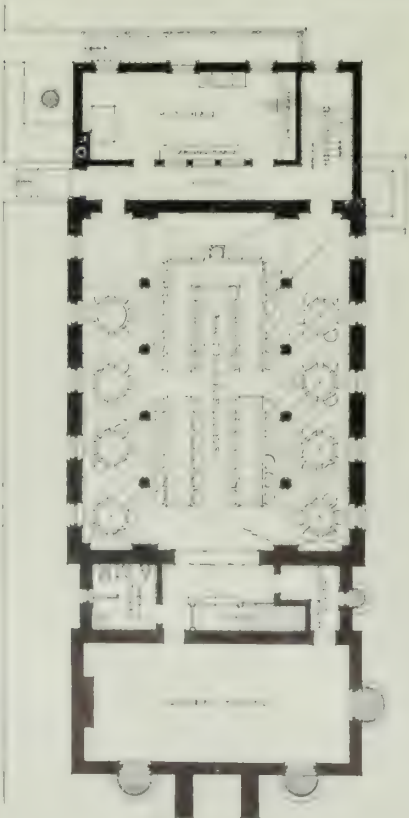
DETAILS OF EXTERIOR ST. AGATHA SCHOOL, EIGHTY-SEVENTH STREET AND WEST END AVENUE, NEW YORK.
WILLIAM A. BORING, ARCHITECT.





ECLECTIC SOCIETY BUILDING, MIDDLETOWN, CONN.

HENRY BACON, ARCHITECT.



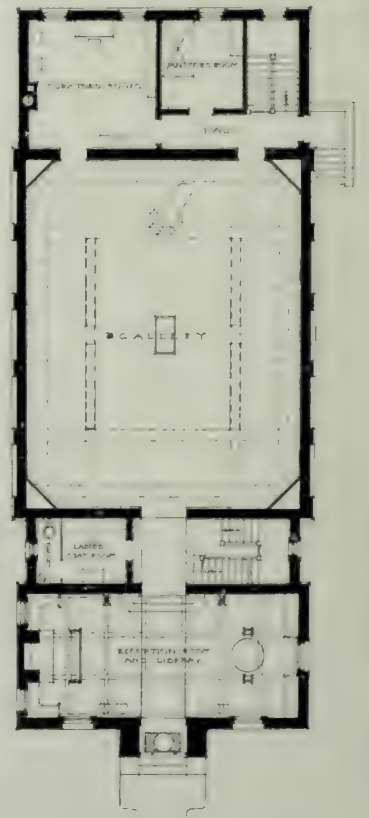
BASEMENT PLAN.



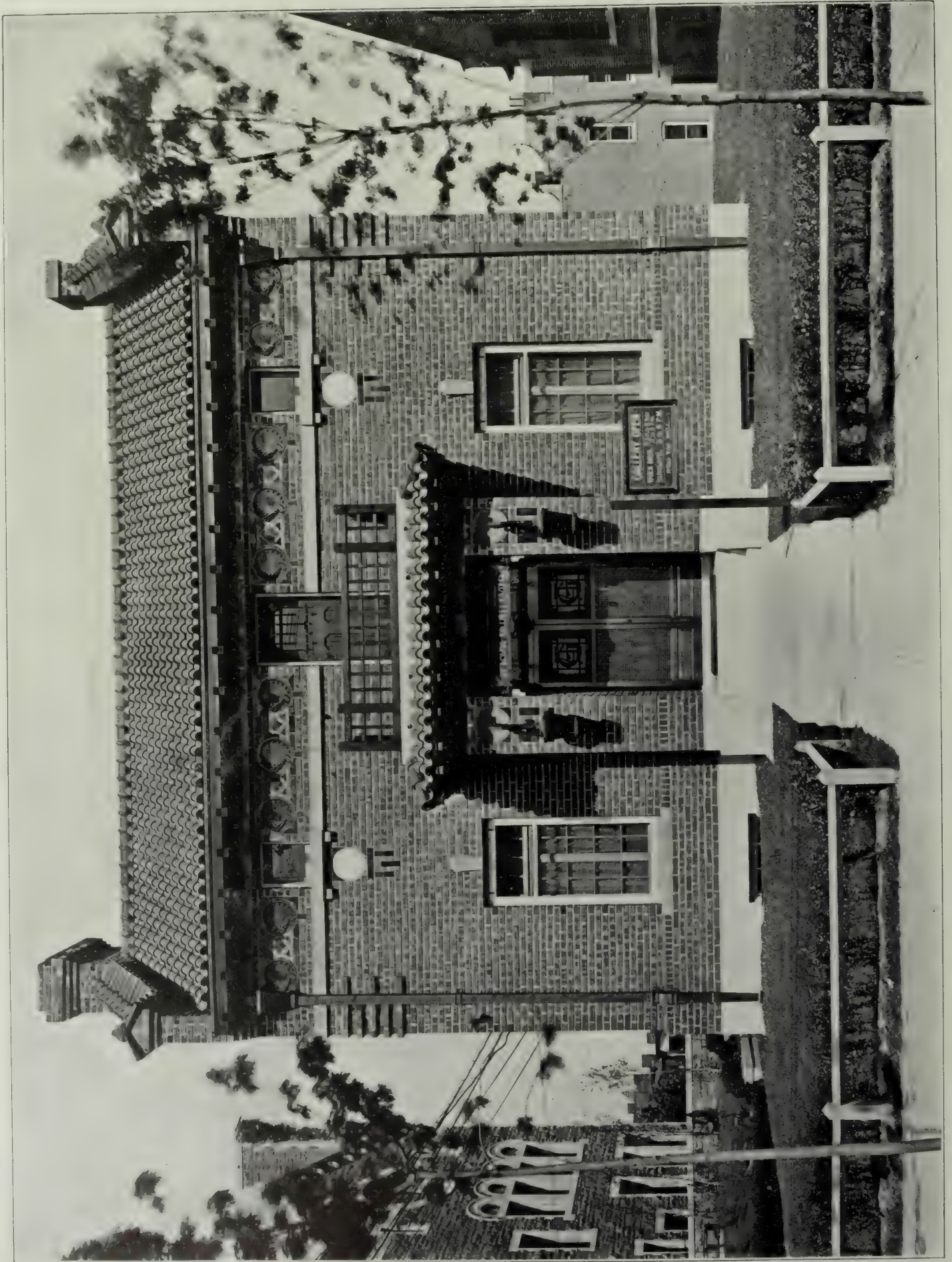
THE RATHSKELLER.

ST. LOUIS ARTISTS' GUILD,
UNION AVENUE, ST. LOUIS.

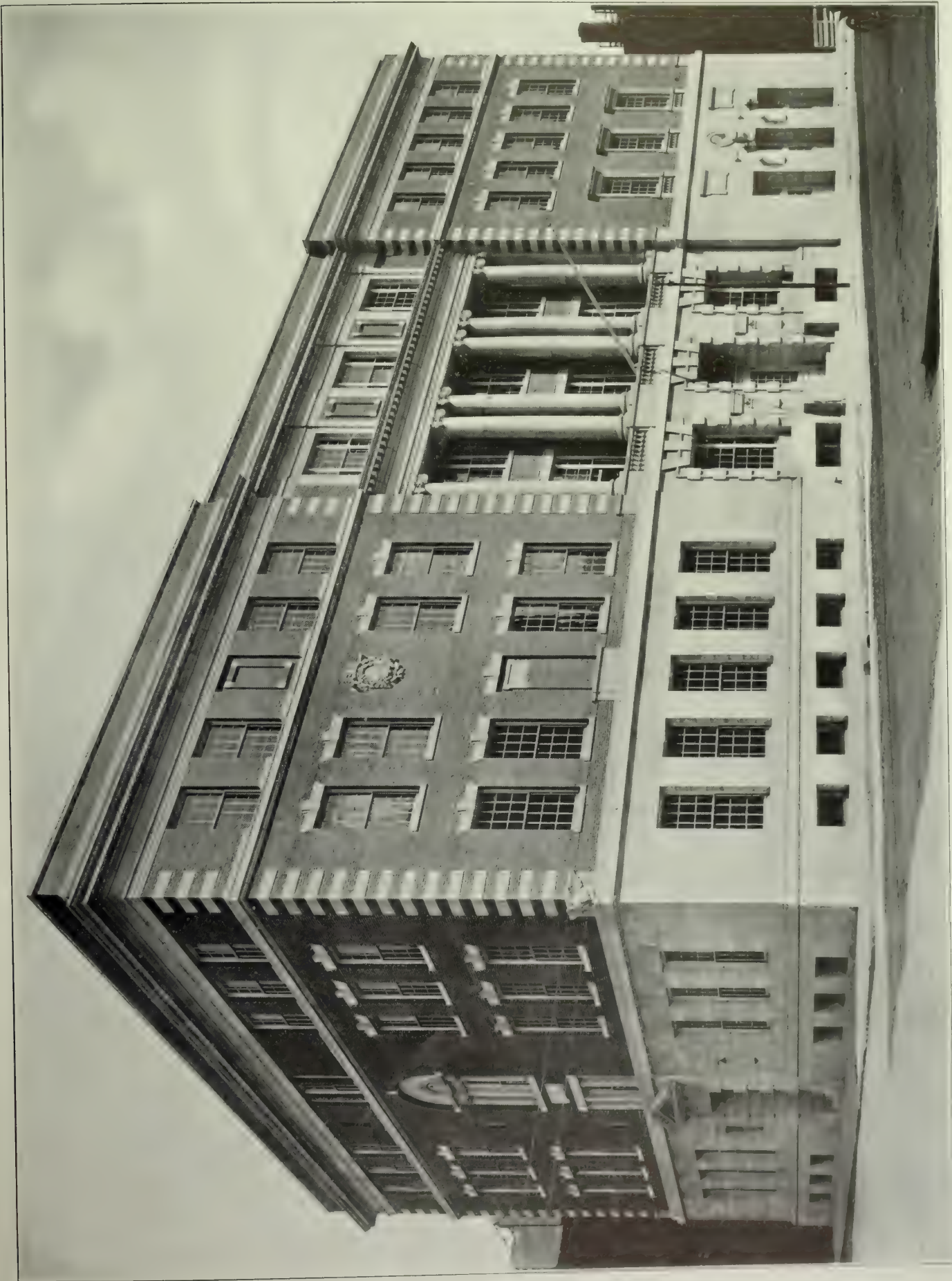
LOUIS C. SPIERING,
ARCHITECT.



FIRST FLOOR PLAN.



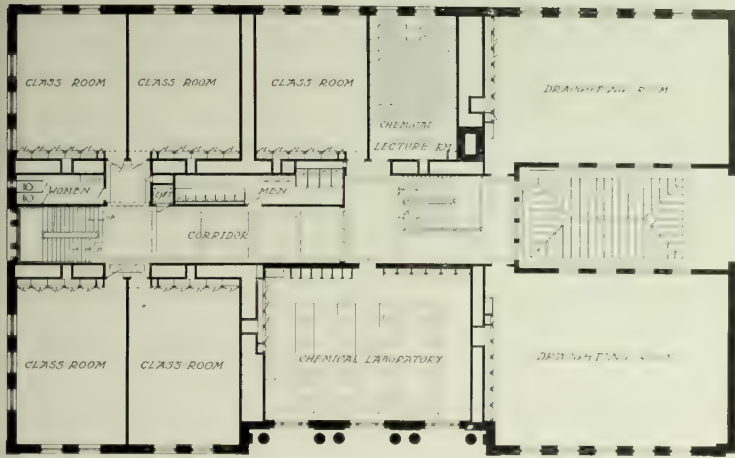
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LOUIS C. SPIERING, ARCHITECT.



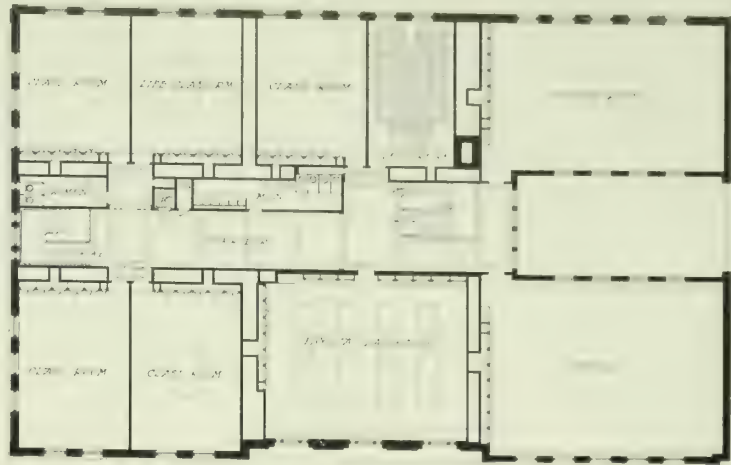
FRANKLIN UNION, BERKELEY STREET, BOSTON.

R. CLAPTON STURGES, ARCHT.

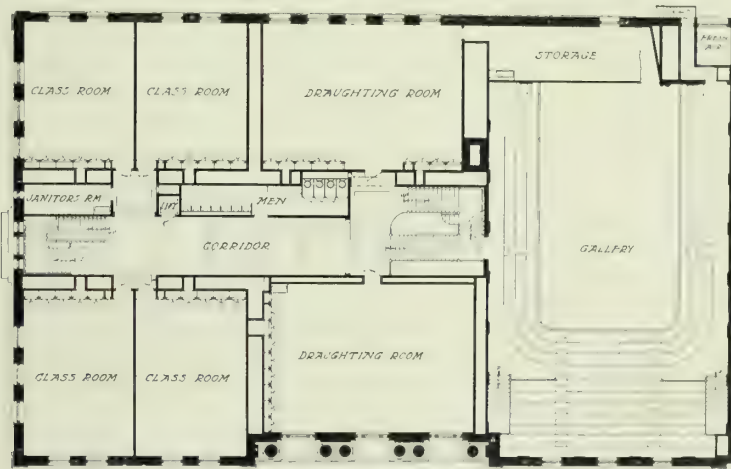




THIRD FLOOR PLAN

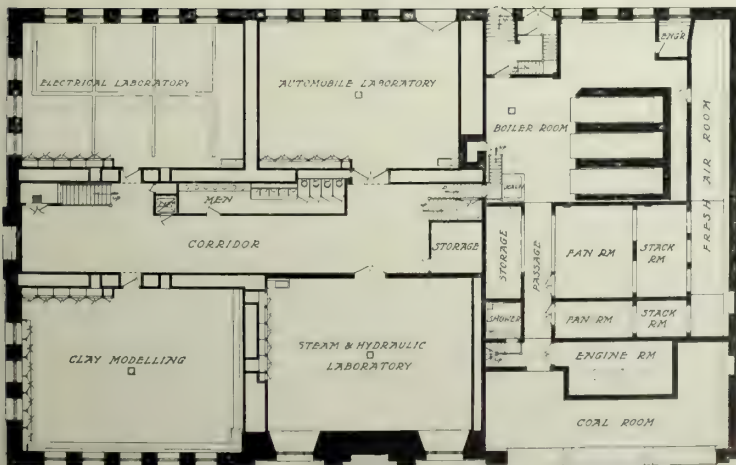


FOURTH FLOOR PLAN

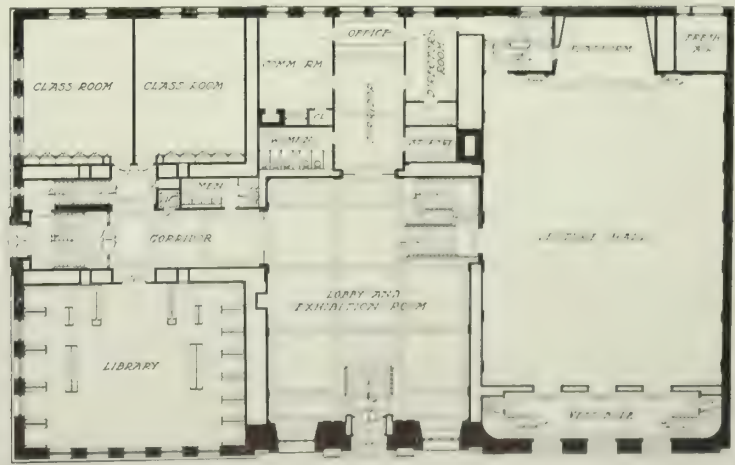


SECOND FLOOR PLAN

PLANS, FRANKLIN UNION, BERKELEY STREET, BOSTON.
R. CLIPSTON STURGIS, ARCHTCT.



BASEMENT PLAN

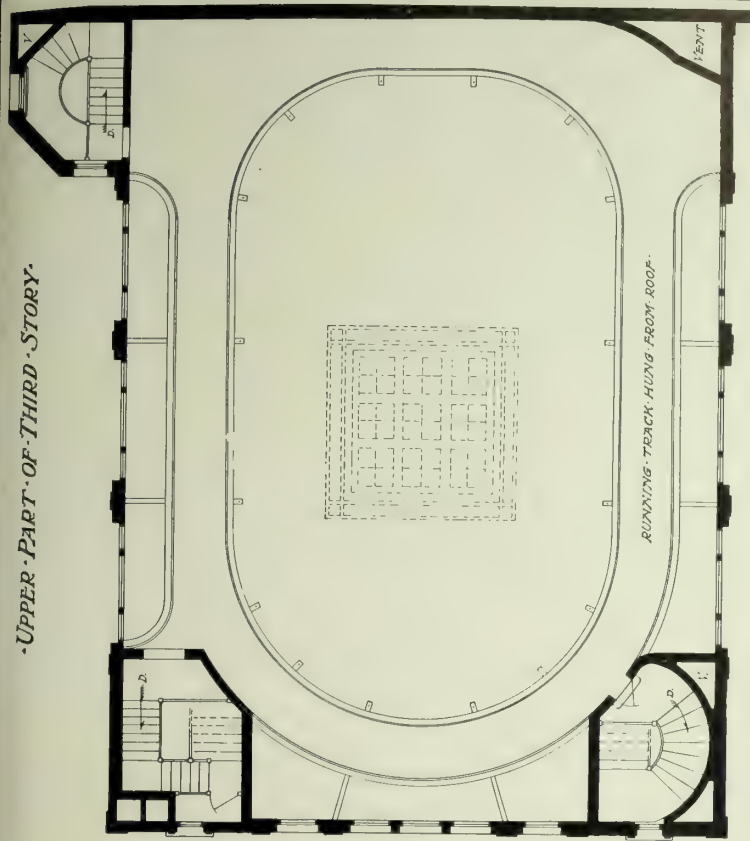


FIRST FLOOR PLAN

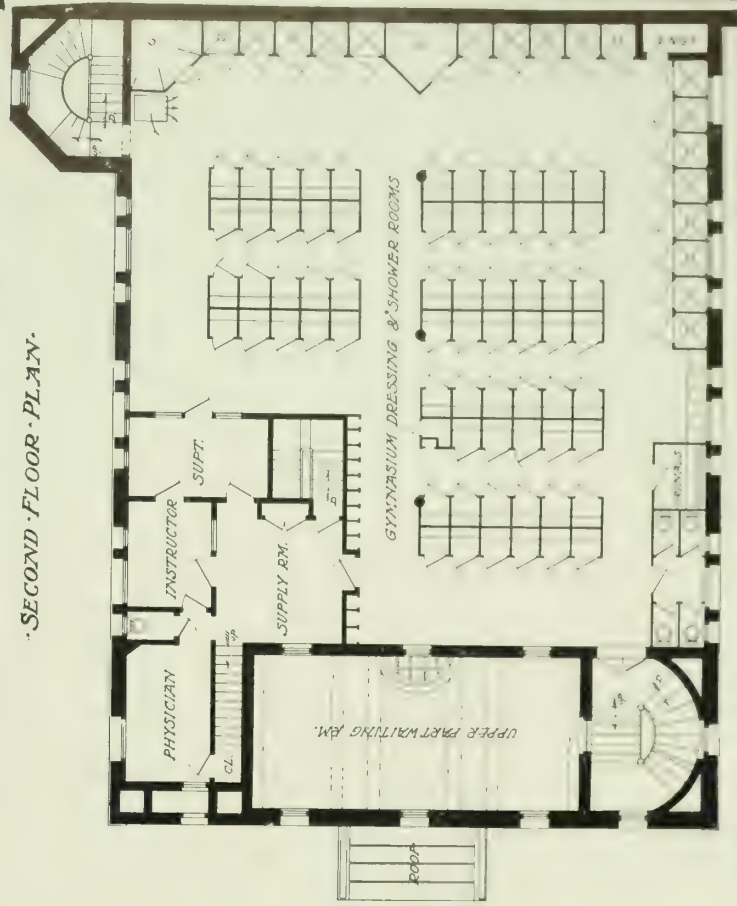


MUNICIPAL BATH HOUSE, NORTH BENNETT STREET, BOSTON.
MAGINNIS, WALSH & SULLIVAN, ARCHITECTS.

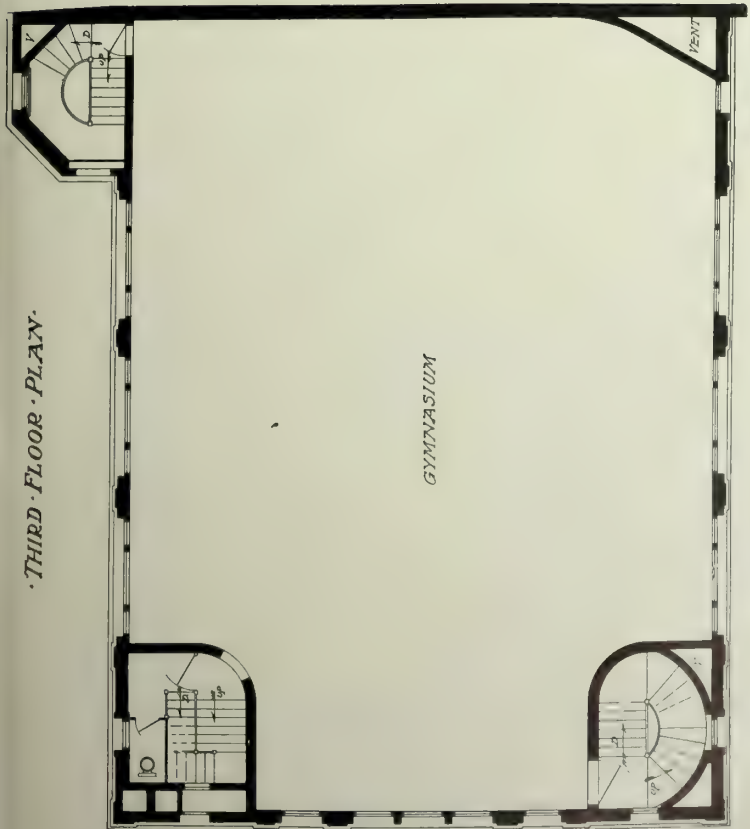
UPPER PART OF THIRD STORY.



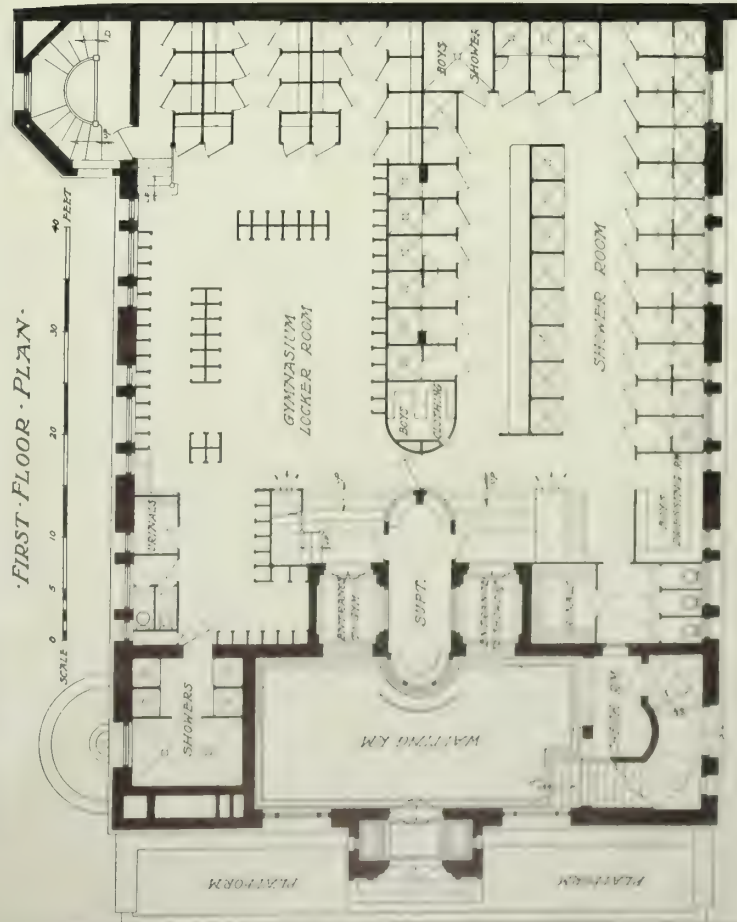
SECOND FLOOR PLAN.



THIRD FLOOR PLAN.

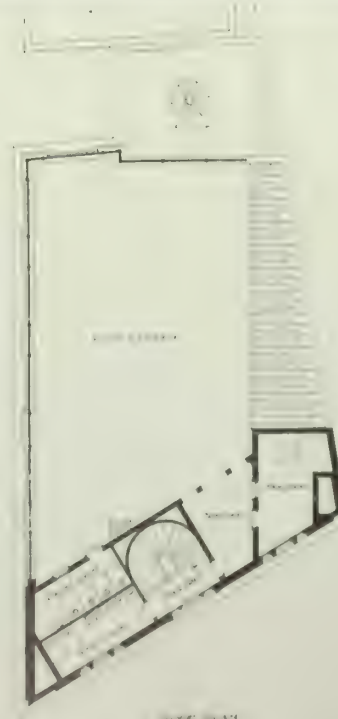
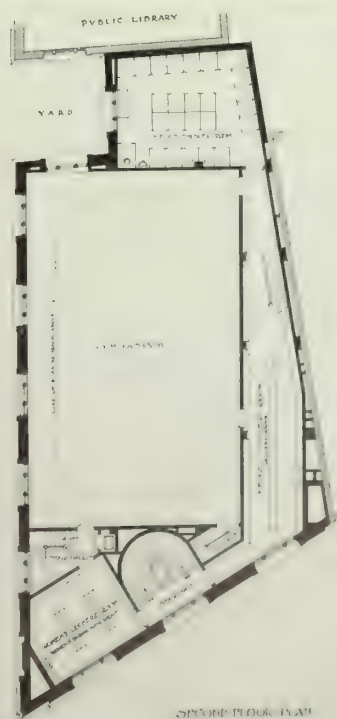
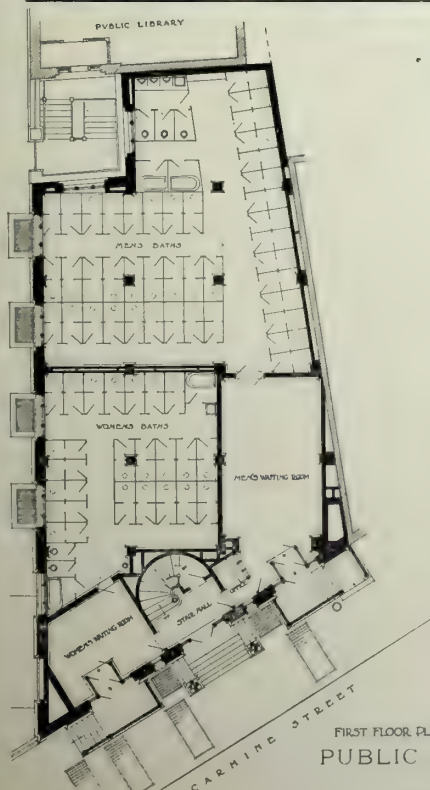


FIRST FLOOR PLAN.



PLANS, MUNICIPAL BATH HOUSE, NORTH BENNETT STREET, BOSTON.
MAGINNIS, WALSH & SULLIVAN, ARCHITECTS.





FIRST FLOOR PLAN
PUBLIC BATHS, CARMINE STREET, NEW YORK.
RENWICK, ASPINWALL & TUCKER, ARCHTCTS.





LIVING
ROOMS.

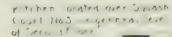


GRILLE
ROOM.

RACQUET CLUB, ST. LOUIS.

MAURAN, RUSSELL & GARDEN, ARCHITECTS.





RACQUET CLUB, ST. LOUIS.
MAURAN, RUSSELL & GARDEN, ARCHITECTS.

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ARLINGTON STREET (UNITARIAN) CHURCH, BOSTON.
Arthur Gilman, Architect.

whether classic in style or Gothic, which has become the source to which all turn for precedent and which has established tradition.

Compare with this the anomalous condition of the churches in America, which have not recognized or desired to recognize this tradition. Denominations which from desire for freedom of thought have withdrawn from the parent church, are at first antagonistic to it even to avoiding reminiscence in architecture. Of many sects, and small groups of people, instead of entire communities, limited therefore in the number of individuals in each church and consequently with comparatively little money, and with no coercive powers to obtain it, the sole income coming not from fixed tithes but from an optional pew rental and the contribution box, the possibilities for fine church building have grown but slowly and only with the increasing prosperity of certain individuals among the parishioners. For it is a recognized fact that intellectual capacity is often disassociated with religious conviction, and with constant religious fervor. The intellectual idea produces the desire at least for a mental control which may create powerful sustained action, but seldom ardent enthusiasm of expression.

Therefore the building of churches is no longer from a wave of thankfulness such as created Santa Maria Della Salute and the Redentore in Venice, but is a deliberate effort of a comparatively small body of men working within limited bounds and assisted by occasional munificence. As compared with the epochs of great building the opportunities are slight. The architects of the great churches were a part of the church body; the builders were sympathetic with the architects; both knew and understood the traditions and their causes.

The traditions of the denominational church can be summed up in one phrase, Freedom of Thought. It requires either a sense of wrong or a certain amount of conceit to break away from tradition, and in either case the first impulse is to avoid the forms in which the tradition is expressed. Christianity at first avoided the forms of paganism, the denominational church avoided the forms of ecclesiasticism. In America the early church and the town hall were sometimes one, and often could be mistaken for each other. Limited in numbers and in funds, avoiding tradition and with no influence of existing churches about them, without architects of ability, and with all sorts of local novel conditions becoming associated with the church in order to give it life-blood, what wonder that the expression of architecture in the denominational churches of America should be crude and chaotic.

Here is the spectacle of small communities of people each attacking a serious problem without previous knowledge or experience, and trying at the same time that they make ends meet, to appear to be doing a greater piece of work than their conditions justify.

The immediate result of such an attitude of mind is unintelligent imitation; imitation of materials to reduce cost, imitation of plans of larger work which when reduced become inadequate, imitation of some piece of architecture that has been seen, regardless of whether it is at all related to the conditions or not, and as a natural consequence, diminutive cathedrals in wood, little St. Peter's in concrete. Here was a chance if ever one existed to work de novo, to take the conditions of the problem and the



FIRST BAPTIST CHURCH, COMMONWEALTH AVENUE, BOSTON.
H. H. Richardson, Architect.

materials and funds at hand, and while associating with them some symbol of the church to denote the purpose of the building, work out a solution with simplicity.

Occasionally churches are to be found in which this was done, but as a rule crude affectation is altogether too conspicuous.

Assuming that the desire is to build the church simply and of materials at hand, what are the essential features of its plan? The denominational church is focused upon its pulpit, not upon the altar; it is almost entirely free of ritual, and requires little provision for processional functions other than wedding and funeral ceremonies. Its congregation meet at stated times and are seated in rented fixed seats, not entering and leaving the church at all hours. Next in importance to the pulpit is the organ and choir, which choir is small, and excepting upon



CHURCH AT ST. LOUIS.

Peabody & Stearns, Architects.

treatment, this hall is in most cases rectangular in plan, but it often takes the polygonal or the circular form of an auditorium, and it is becoming usual to slope the floor so that each individual may see as well as hear readily. Manifestly the limitations of size of this audience room are influenced, first by the distance at which a normal voice can be easily heard, which is somewhat over seventy feet, and next by the length of span of the roof trusses, of which the cost increases rapidly beyond forty feet. It is important that this room should be as well proportioned within as without, and it has none of the details of deep embrasures, piers, columns, etc., of



FIRST CHURCH (UNITARIAN), BOSTON.

Ware & Van Brunt, Architects.

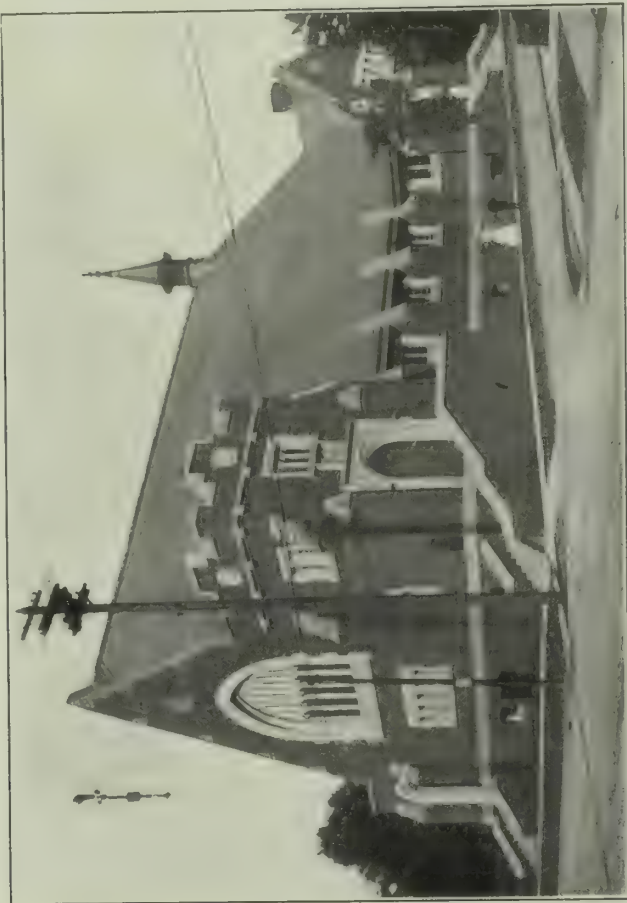
certain festivals, takes comparatively small part in the services.

As a result of these conditions, the chancel as such ceases to exist, and becomes merely a niche, the raised altar does not appear, the communion table being placed on the level floor, and the elevated pulpit becomes the principal point in the church. As the ritual, which is used by the congregation, has grown less in importance, the sermon, to which the audience is to listen, has become of more importance, and it is desirable that each person should be able to readily see and hear the minister. All intercepting piers, columns, etc., have therefore become eliminated and the aisle is no longer the cathedral aisle, but the name is merely applied to the passage between the rows of seats, and the body of the church becomes a large audience hall with a niche and platform at one end. Partially from tradition, partially from simplicity of



CHURCH AT BOSTON.

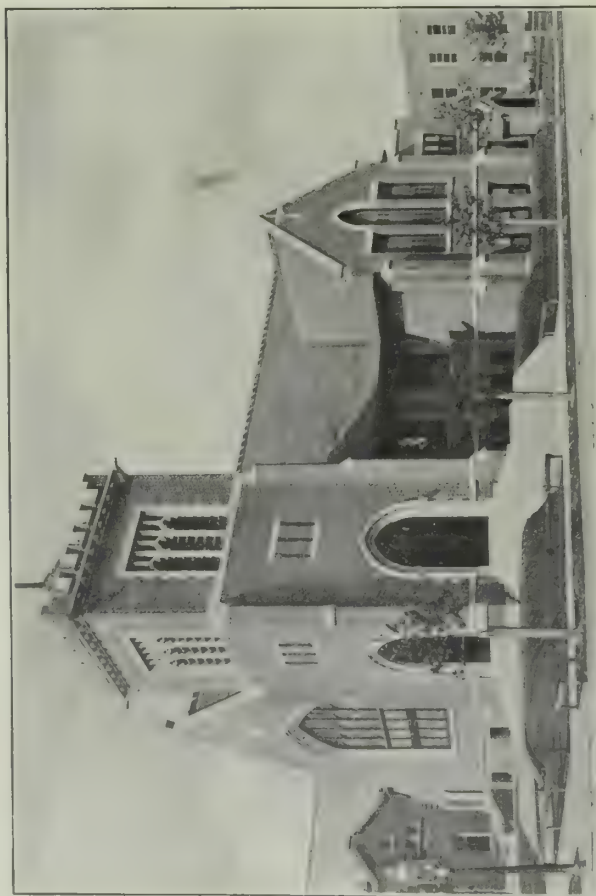
C. Howard Walker, Architect.



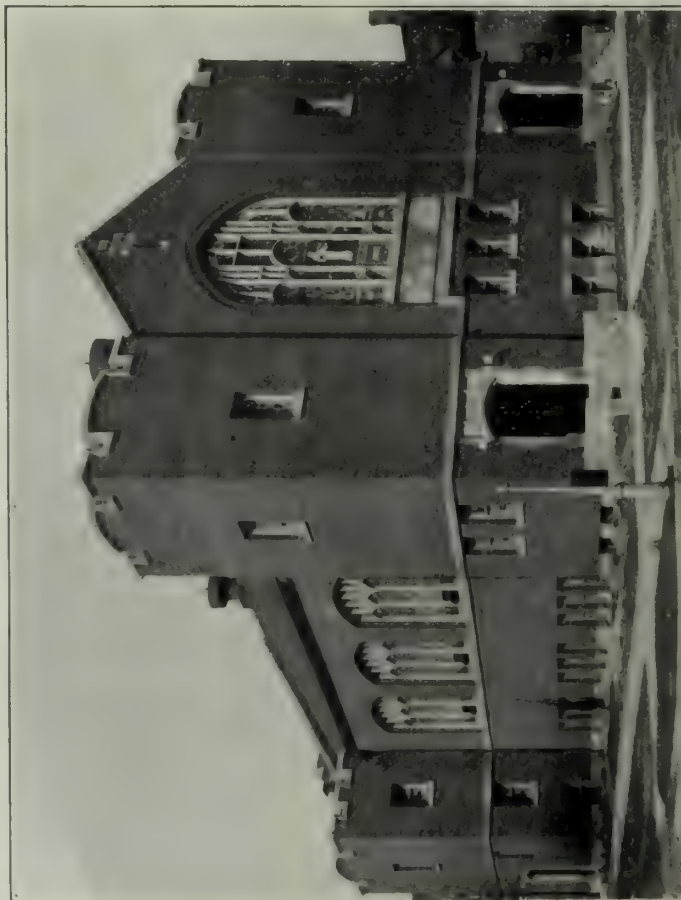
WINDEMERE PRESBYTERIAN CHURCH, CLEVELAND.
J. Milton Dyer, Architect.



CONGREGATIONAL CHURCH, ATTLEBORO, MASS.
George F. Newton, Architect.



CHURCH OF THE MESSIAH, ST. LOUIS.
Mauran, Russell & Gorden, Architects



BAPTIST CHURCH, CHICAGO.
Frost & Granger, Architects.

the ecclesiastical churches. It has already been mentioned that the great churches were planned for maximum requirements, so that the entire community could be accommodated during great religious functions, and the comparison should be made between them and these other churches, each of which has a comparatively small fixed congregation.

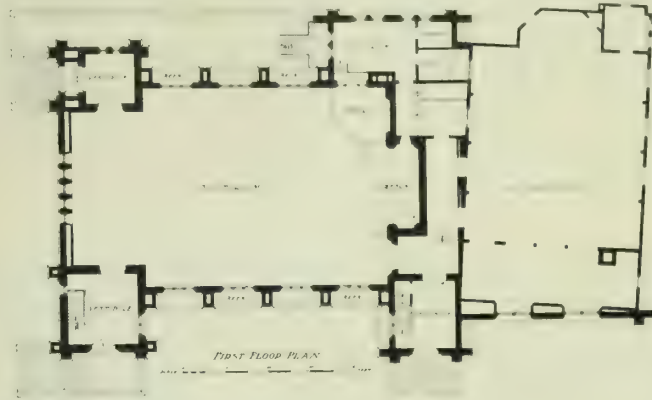
But associated with any church is religious instruction for the young, which has developed into the Sunday school. In the cathedrals pupils are taught either in the body of the church between services or in the chapels, but in the modern American church a Sunday school is necessary, a large room without fixed seats accommodating a number of somewhat more than half the congregation. It has been found that if the Sunday school can be so planned that it can be opened into the church that it will increase the capacity of the church at exceptional times and allow a smaller church to meet all desires. Instead, therefore,

great height of exterior wall. The next development in this arrangement comes from the subdivision of the Sunday school room into class rooms. Sometimes these rooms are merely adjacent rooms to the main Sunday school room, at times the class rooms only exist, and

these are as far as possible arranged to increase the seating capacity of the church by opening into it with folding or sliding doors. As the class rooms do not require as great height as the church, they may have either other class rooms or galleries over them opening into the church. It is evident therefore that the class rooms are becoming to the modern American church what the chapels were to the ecclesiastical church, that

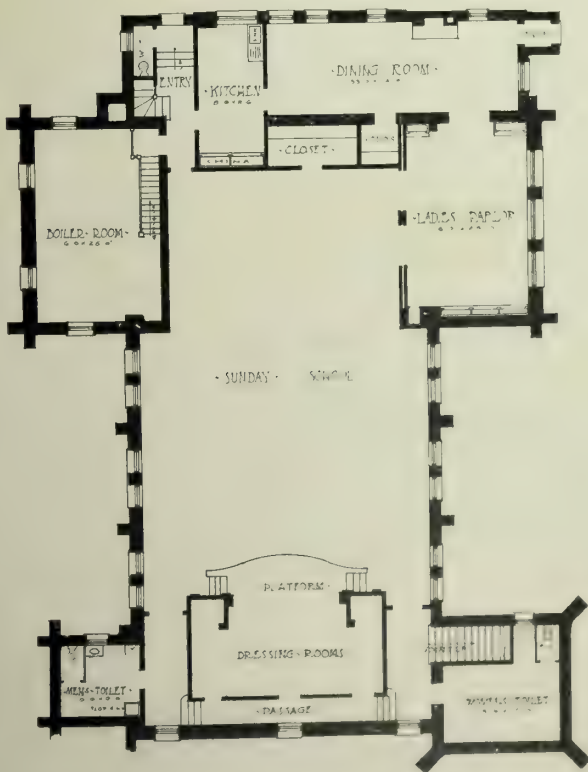
is, adjacent cells to the main cell, but that they are used for a very different purpose.

As manifestly these class rooms will be of no benefit as parts of the main auditorium, unless they are within easy hearing distance of the speaker, the whole tendency

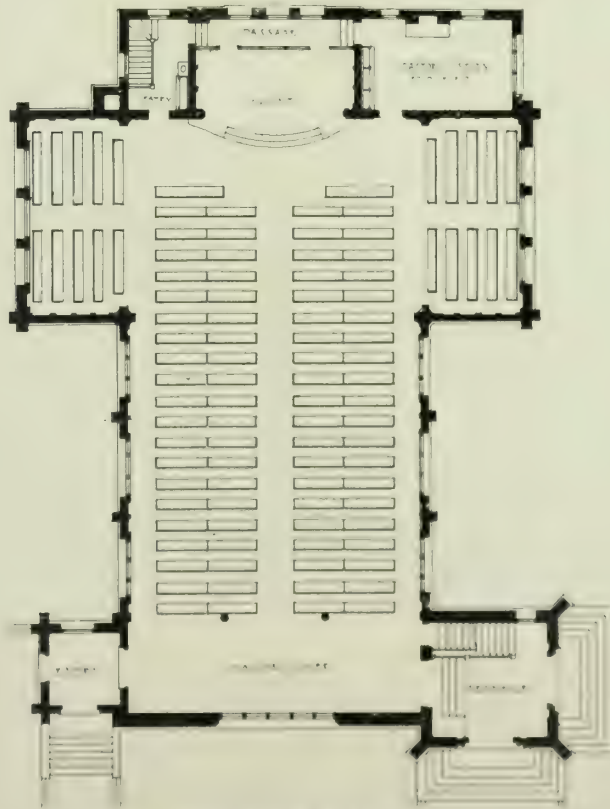


WINDEMERE PRESBYTERIAN CHURCH, CLEVELAND.

J. Milton Dyer, Architect.



BASEMENT PLAN.



MAIN FLOOR PLAN.

CHURCH OF THE MESSIAH, ST. LOUIS.

Mauran, Russell & Garden, Architects.

of the pupils being taught in the church, the Sunday school is practically an isolated portion of the church which may be thrown into it. This method of increasing floor area and seating capacity has in the smaller churches taken the place of galleries, which required

has been to concentrate the masses of the plan near the pulpit, to broaden and shorten the church, and to have the class rooms in pseudo-transepts. But all traditional type of plan might as well be abandoned if this desire is paramount to the church authorities, for there is no doubt

in regard to the best mutual relation of cells for this purpose. Either the body of the church should be an octagon or a hexagon with the class rooms opening from each of the sides, or it should be a Greek cross with the class rooms in the transepts. Galleries can be used with either type. In all churches of this character, light can be obtained above the class rooms or from the ceiling. It will be obvious that a church of the character described covers large ground area, and would cost considerably more than one where the Sunday school was placed under the church in a high basement.

This second type of church, the one with a basement, high out of ground, is a development of the necessity for economy both in regard to land and to area of building, and is difficult to treat satisfactorily as far as the exterior mass is concerned, not so much because of the height of wall but because the basement window openings being short in height, require greater breadth than those above to give adequate light, and the church wall seems set up on legs. If there is marked slope to the land on which the church is set, advantage can be easily taken of the change in grade, but upon a level lot these high basement churches require very careful proportioning to obtain even a tolerable result, and if sufficient land can be acquired there will be much

greater probability of good architectural proportions where it is not necessary to have the basement high out of the ground. Here however, as in many other contingencies relating to the church in America, lack of funds goes far to jeopardize æsthetic results.

There has grown up in the church a social life which has little to do with the religious life of the congregation, excepting that it leads to an interest in the church as a factor in everyday life. In place of saints' days and the accompanying processions and pageants and the celebration of other events in the church calendar, there are now social entertainments, fairs, socials, etc., which require many of the appurtenances of a well appointed dwelling, with the

additional necessity of space for a larger number of people than would be present in all except very large houses. In place of the refectory of the monastery is the dining room, and while the kitchen is no longer of the size or capacity of the monastery kitchen, it is fully as necessary and quite as efficient. This department of church life is now almost wholly left in charge of the ladies of the congregation, and the fact that women have entered so largely into church organization in recent years has tended to enlarge this portion of the church plan. Not only is the dining room necessary but it has become nearly as large as the church and is becoming the center of a separate nucleus in the plan, the secondary

factors being the kitchen, men's and women's coat rooms and adjoining toilet rooms, and a ladies' parlor. The ladies' parlor is also practical as a committee room for the standing committee of the church and to a certain extent occupies the same relation to the modern church that the chapter house did to the cathedral. Either the dining room or the large Sunday school room is arranged with a large platform or stage, in connection with which are dressing rooms so that private theatricals can be readily given, and the whole department is much more secular than religious in its character. For this reason if for no other, it is less closely related



PRESBYTERIAN CHURCH, CHICAGO.

Howard Van D. Shaw, Architect.

to the body of the church than is the Sunday school, and in the natural development of the plan is somewhat isolated. There are three obvious methods of planning: one to place this portion, the social portion of the church plan, in the basement of the church, another to place it in a separate wing of the church, the third to place it over the Sunday school. Each of these methods is practicable and is influenced by the character of the lot and the limitations of expense. Placing these rooms in the basement, unless the church is on a side hill, is open to the objections already stated of a stilted, badly proportioned and perforated base to the building. It must be remembered on the other hand that these rooms, with

the exception of the ladies' parlor, are seldom used without artificial light, and need by no means have so much outside light as is ordinarily given them.

There seem to be no positive objections to the other two methods, excepting that the dining room is much more accessible on the ground floor than in the second story. This brings up the question of circulation. The circulation in the church is, from the mere reverential attitude of mind, gradual and without haste, and a large number of entrances and exits for the church seating four hundred or five hundred people is unnecessary, excepting in case of emergency. It is well, however, to

desirable. The vestibules however, provided the egress be direct, need not be as large as those of the church.

The vestibules of the dining room and its accessory rooms should be ample, especially about the coat rooms. Staircases are in many cases governed by more or less admirable state laws. It is needless to say they should be broad, not less than 4.6 nor more than 7.0 wide and not more than 7.0 in height between landings.

American churches have no income from tithes, they are dependent upon pew rentals and contributions, both of which are fluctuating. They are, however, free from taxes. In small communities where land is to be ob-



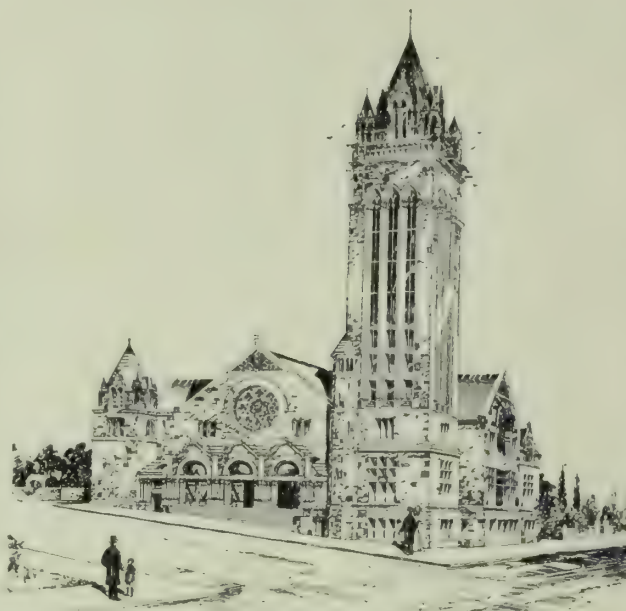
METHODIST CHURCH, ST. LOUIS.

T. C. Link, Architect.

have ample space in the vestibules, both because at these points the converging streams of people from the different aisles meet at the end of the service and are apt to linger, and must necessarily wait for carriages in rainy weather, and also because the main vestibule at least is used as space in which to arrange wedding and funeral processions. In the smallest church there should be more than one direct entrance and exit in case of panic, even where the windows are near the ground. In any large church a door opening into the vestibule at the end of each aisle is desirable. The circulation in the Sunday school is more rapid, and immediate egress more

tained at small price, the burden of initial expense and also of cost of salaries and maintenance is much less than in large cities, yet these churches are proverbially poor, and in building, every possibility is compassed to obtain the most for the least money, both in superficial area of plan, character of materials, and cubical contents. Yet few church societies are content to eliminate a tower from their design, and a tower is a luxury of considerable cost. It has, however, come by tradition to be especially symbolical of a church edifice. Its original purpose being to elevate the bells so that they could be heard at a long distance to call to service, in many cases in American

churches it has entirely lost that function and merely stands as a symbol announcing the church. Often, however, it has the additional purpose of carrying a clock. It is so individual a note in Christian civilization that it will probably never lose its significance, and will never be abandoned and, as in the case of the New Brattle Street church on Commonwealth Avenue in Boston, will be kept as a monument even if the church itself is removed. Many of the classic churches, however, are without towers, or if possessing them, they are built independently of the church as campanile or bell towers. In the cathedrals, however, they became incorporated with the walls of the church, and occurred not only singly and in pairs at the west end but also at the ends of the transepts and at the crossing of the transept and nave. In each of these positions the smaller churches have imitated the cathedrals, and towers have been placed indiscriminately where it was considered that they would compose well in the general mass. They appear over porches, in angles, invading the interior at times, and since the appearance of the omnipresent iron girder, unapparent on the plan. It is obvious that a tower should be apparently strong at its base and that its corners especially should be adequately solid, also that it should not seem heavier at the top than at the bottom, and that it should appear to start from the ground if possible. Its walls therefore are thicker than those walls of less altitude, and even if it be built with steel construction it must have this evidence of third dimension to insure appearance of stability. If it is not on a prominent axis of the church, it should not be too much buried in the body of the church without a well announced reason, but gains in effect by apparent isolation. The tower at the crossing of transept and nave which occupies the position of the classic dome, is, if of masonry, an expensive structure and



BAPTIST CHURCH, SEATTLE, WASH.
Marsh & Russell, Architects.

usually out of scale, excepting in large buildings.

Up to this point we have considered the exigencies of plan of the denominational church, which can be rapidly summed up as follows: An audience room with or without galleries without interruption of sight or sound, and with all persons within hearing distance of the pulpit, which is the focus of the church; a shallow apse or niche back of the pulpit, which will accommodate visiting clergy, etc., and upon which may be the organ and choir though these can be in a gallery at the side or at the other end. A Sunday school department which is often arranged so that it will supplement the church, but which may be in a separate building or in the lower story. A social department which is adjacent to the church and which may be in a separate wing, or in the basement or over the Sunday school.

There are of course minor rooms, such as the choir room, minister's study, in some cases a baptistry, etc., which can be accommodated in any good plan.

The exterior of the church is necessarily an expression of its plan, or should be; as a matter of fact it is not usually as closely related to the plan as could be desired, all sorts of ingenious devices ostensibly ornamental being added to the structure. Many of the early churches were simple halls with a good porch on the main axis, a tower or belfry over the porch, good eaves or cornice, and well proportioned windows.

The colonial churches, strongly influenced by the London prototypes by Sir Christopher Wren and his pupils, were of this description. Many of them exist to-day and are usually known as meetinghouses, and are pleasurable to look upon. They were of stone or of brick with wood trims, as cut stone was beyond the means of the builders, and frequently were entirely of wood, and in that case, frankly and simply of wood without any effort to imitate other materials in the best examples.



SECOND BAPTIST CHURCH, ST. LOUIS.
Mauran, Russell & Garden, Architects.

A product of the Georgian period and of classic tradition, their details and proportions were based on the study of the orders of architecture, they were symmetrically planned and developed, and they are to-day the best churches of their kind. There is no attempt at imitation, for the wooden forms while adapted from stone are thoroughly characteristic of wood, and no effort to produce the bizarre in general effect. There are in England and in France small churches of equal sincerity in another manner, both built before the classic revival. Those of England are brick or stone with small square towers on the axis and with wooden porches of heavy oak beams, while those of France, also of stone and with wood porches, are often without towers, a wooden spire covered with slate over the crossing of transept and nave occurring instead and with small tourelles in which staircases mount to galleries. The general character resembles Gothic work.

During a later epoch the American church became heavier in detail, its wooden structure was made to imitate stone even to the reproduction of buttresses in wood, but it has been reserved for the last four decades to produce the harlequin churches in which all materials are used with ostentation and insincerity. There are of course churches frankly imitative of good examples, such as Arlington St. Church, Boston, and the North Church in Portsmouth adopted from Wren and St. Paul's in Boston, a classic temple, and also the work of able individual architects, such as Upjohn and H. H. Richardson, whose training and genius made them capable of creation, but the vast majority of the work done for church societies throughout the country has been a bad adaptation of small means to a poor end. Especially is this evident in the introduction of minor details which have not been understood. Gothic architecture, under whose name the worst work has been produced because it seems to have greater freedom than does the formulated classic, is at its best the very apotheosis of fine stone construction. There is not a superfluous factor in it, nor a stone that is not do-

ing its work. In the process of its evolution, it produced vaulting with its ribs, tracery, buttresses, flying buttresses, pinnacles, each absolutely necessary in its place, and each of which has been imitated as being merely ornamental. It was true some few years ago that of all the flying buttresses tucked in to fill spaces in American churches not one was necessary, not one doing any work, and it is equally true of many of the buttresses and pinnacles. The chief criticism that can be made is the excessive use of structural forms in so-called Gothic, of

which the designer is ignorant of the purpose, and of classic details in classic architecture, of which he has lacked knowledge of proportional relations which have been established for centuries. In this respect the denominational church is much more unfortunate than is the ecclesiastical church, for the latter has studied its traditions and learned from them, both among the clergy and architects, while the former having no church building tra-

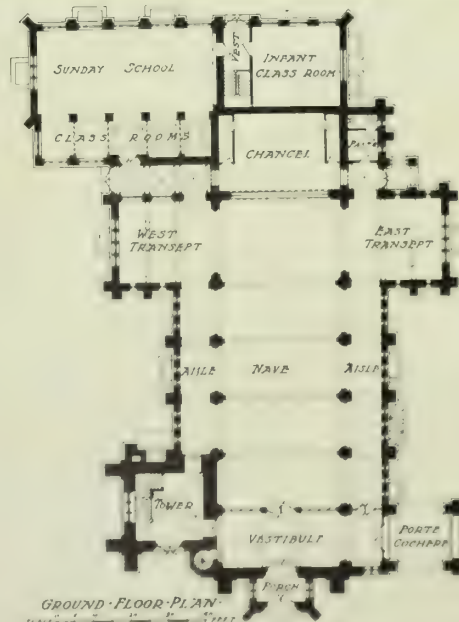
ditions has not studied at all but has put together a farrago of odds and ends.

Also the points for focusing effort have been ignored. Ornament has been considered essential, where in fact its purpose should be merely to embellish work already admirable. In superabundance it is vulgar, and when diffused it is ineffective. Restraint in the use of ornament is an indication not of paucity of imagination but of justice of perception. Especially is this the case where means are made to meet ends. A simple sincere building with its ornament focused at its entrance, at the tops of its axial or important openings, and on the terminations of its towers or structural points has distinction and contrast which place it far above a crude but elaborated mass. Especially should all heavy detail be eliminated. No detail at all is

better than burdensome detail.

Buttresses should not occur unless they have an apparent purpose of resisting thrust or of stiffening long surfaces of wall. They are too often used as merely ornamental factors.

(This article will be continued in January, 1909.)



FIRST PRESBYTERIAN CHURCH,
SYRACUSE, N. Y.

Tracy & Swartwout, Architects.
Ballantyne & Evans, Associated.

The Development and Financing of Apartment Houses in New York—I.

BY ELISHA HARRIS JAMES.

AROUND 1860 there was little between the tenement houses for the poorest and a few so-called high-class apartments, expensive and large. From these limits the extensive building and many types of apartment houses have evolved. But, while the changes in the size and number of rooms have been caused by the demands of the tenants and many small conveniences have been added due to the keen competition among owners and agents, it is a peculiar fact that the hygienic improvements have been caused more by sanitary regulations than by any other reason. The periods of devel-

than seven rooms and one bath. At the present time it is not uncommon to find suites of from eight to twenty rooms with two or three baths and one for the servants, besides wash basins between the chambers. Formerly there was one minimum size room for the servant, not much more than a closet; now, in some instances, there are three servants' rooms, and liberality in other ways, with large pantries, separate laundries, steam clothes dryers, cold refrigeration, separate service elevators, etc. Small conveniences are carefully considered, such as house telephones, public telephone service to each apart-



FIG. 1. APARTMENT HOUSE PLAN.

James & Leo, Architects.

opment have been marked: first, by the organization of the municipal Board of Health in the early sixties, which formulated the sanitary regulations governing these buildings; second, by the transfer of this authority to the Building Department and its supervision of these buildings; and, finally, by the new Tenement House Law of 1900.

Fifteen years ago there were some large apartments which had been built by capitalists or estates, a few containing "duplex apartments," or those extending through two stories; aside from these, there were few of more

ment, mail delivered by electric carriers, elevators running all night instead of until twelve o'clock, uniformed hall boys in attendance, and many other details for the comforts of the tenants.

The advent of the Tenement House Law was a new era in apartment house building; and although opposed and condemned by some of the owners, builders, and operators, who were not easily convinced of or were unable to foresee its advantages and who thought their property and business would be ruined, its benefits were beyond description, and the conservative and

shrewd ones realized that it was to their profit and a blessing to the tenants. The majority of arguments against it could be sifted down to opposition on account of some selfish interest of the opponent. The speculative builder accustomed to small rooms, narrow courts and dark halls, found that a larger lot with a smaller percentage of building and more generous lay-out of rooms would be required, and he was frightened. An

omic result was a great increase of supply over demand and of many buildings carried along on extended credit while waiting for purchasers. This condition, had it continued much longer, would have been the cause of many failures and foreclosures.

The new law was responsible for a great relaxation in building operations for almost two years, allowing the demand to meet the supply and stopping the frantic building speculations. Another and great benefit of the new law to all concerned was that its provisions were so carefully drawn that they virtually took the place of first-class architectural services. It is well known that the majority of apartments were and are designed by a class of architects who, on account of their lack of training and low charges, gave little or no study to the distribution and lighting of rooms and halls, to general design, or to taking advantage of special conditions. As long as they complied with the few requirements of the then existing law it was satisfactory. Their work consisted simply of a set of working plans to file with the Building Department, from which the builder completed the work without their details or supervision. The result was poorly designed buildings with dark, dingy, ill-ventilated rooms. But now by reading the

requirements of the new law and by following its provisions, which are obligatory, it might be said to require more study to make a poor apartment house than to make a good one. The only way the architect can go astray is in the elevations and by using poor judgment in the sequence of rooms. Take one clause as an example:

"In every tenement house hereafter erected, . . . every public hall shall have at least one window opening directly upon the street or yard or court. Either said window shall be at the end of such hall with the planes of the window at right angles to the axis of said hall, or there shall be at least one window . . . in every twenty feet in length or fraction thereof of said hall.

"The aggregate area of window to light or ventilate the stair halls shall be at least eighteen square feet for each floor.

"In every such house there shall be in the roof directly over each stair well . . . a skylight of not less than twenty square feet in area."



FIG. 2. APARTMENT HOUSE PLAN.
James & Leo, Architects.

operator who purchased plots to divide into lots of certain size to be laid out on the old lines, feared that he would not have purchasers, or would have to divide his property to a disadvantage. The owner was doubtful lest the larger building and its additional expense would not have its corresponding increase in rentals. Of course no law is perfect and some have apparently suffered from it, but the proportion is infinitesimal compared to the number who have been benefited by it. A few had to make sacrifices. At the same time many who were sure they were to be injured received benefits in a way that they did not then, and possibly do not now, appreciate. Just prior to the passing of this law, on account of the ease with which building loans and mortgages could be obtained, a multitude of speculative builders had started buildings with practically no capital, or had undertaken two or three operations before finishing the first, being spurred on by the success of their predecessors in this line and encouraged by the operators, who in their greed had but the one idea of selling their properties for large profits. Apartments were springing up like mushrooms. The natural econ-

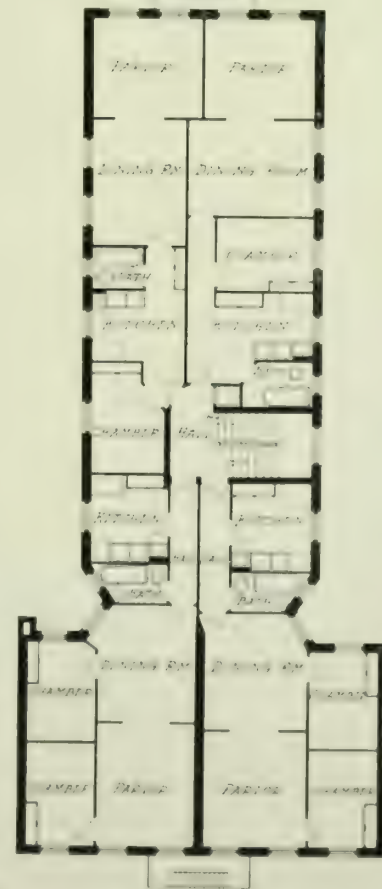


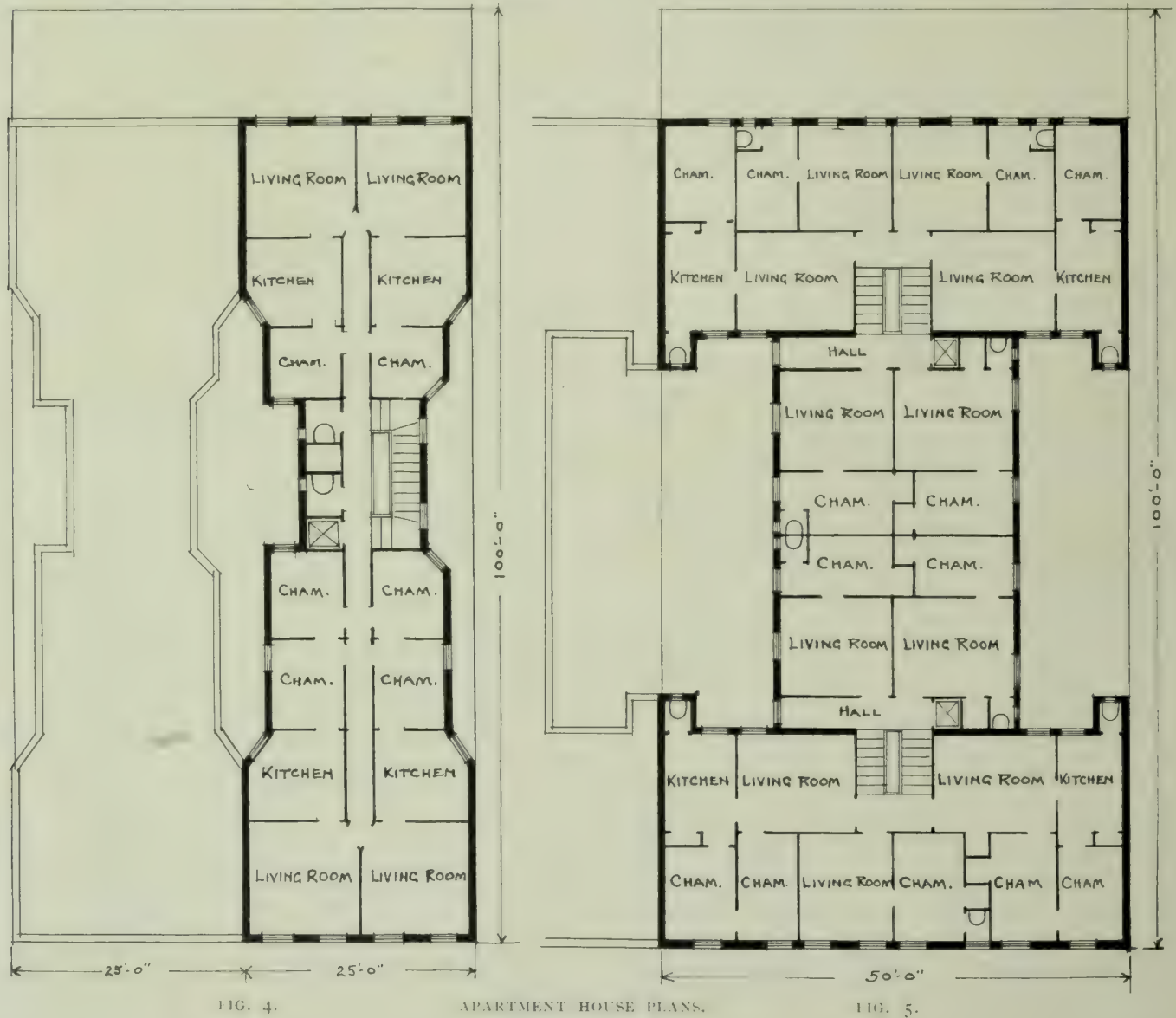
FIG. 3. APARTMENT HOUSE PLAN.

If you abide by the provisions, which you must do, you cannot plan a hall to be dark if you try. In general, it has resulted in well-lighted and ventilated apartments, very desirable, and easier to rent at higher rentals.

The law was not necessary for the expensive high-class apartments, and studying many of those built under the old law you would find little of serious change in the planning, as good light and ventilation were essential to commanding a high rent. The principal differences were in the shape of courts and in minor details.

lighting and ventilation has trifle larger and as many rooms as the old houses on a similar size plot. To be noted in Figs. 3 and 5 are the simple straightforwardness of the plans, the small amount of corridors and the few angles in the walls, features which show in most of the buildings erected under the new law and which are directly due to its provisions.

All conscientious builders were thankful for the law. It is mandatory in every way, no discretionary powers are given to the commissioners. The framers appreciated



Figs. 1 and 2 are good examples of the above, and are here illustrated.

In both, the side courts would have to be wider, but the center ones are larger than required, otherwise the same area could be covered and little change in the arrangement would be necessary. The great change was in the cheaper apartments and tenements.

Fig. 3 shows one of the new type of cheap apartments. Fig. 4 shows one of the best types of tenement houses under the old law and from this they vary through all degrees of poor lighting and arrangements; and Fig. 5 shows a plan by Ernest Flagg of a tenement house under the new regulation; this with its excellent provisions for

the class they had to deal with. If one wishes to spend a few hours in the Tenement House Department, studying the types of people having business there and listening to their questions, noting how they are trying to evade regulations, and the amount of the clerks' time they consume, one can then comprehend why it takes so long for the department to act on plans and violations. The innocent have to suffer for the selfish, dishonest, and pig-headed ones who try to circumvent the law and who think they have influence or can argue to have the law modified or suspended for their special case. These developments and requirements, however, have changed but little the general methods by which the apartments are built and financed.

Suggestions for Architectural Study in Western France—I.

BY FREDERICK REED.

BRITTANY is a land of legends and superstitions. Her individuality never changes and her people are ever loyal to the life and art of the past. By intermarrying and speaking their own language they have clung tenaciously to traditions and customs with a devotion unknown to the neighboring provinces thereby furnishing a striking contrast to the rest of France. Here also, as nowhere else, the quaint and attractive dress of the Breton-folk harmonizes with the picturesqueness of the architectural ruins. This simple peasantry with white caps and heavy wooden sabots lend a dignity to their field labor and a nobility to their homes that are as impressive as their timber houses stained by time or their speechless menhirs of Druidic origin. The solidarity



DOLMEN OF THE BATHS NEAR SAUMUR.

of the French republic to-day is an outgrowth of this Brittany and the other ancient provinces that still retain their own individual characters. Such an antithesis enables us to enjoy all the more a country where the memorials of a pre-historic time are linked to the luxury of a modern art by the monuments of a strong and artistic architecture of the middle ages.

In order to facilitate the work of any desiring to travel and study the architecture of western France let us include the provinces of Anjou and Maine with Brittany. Anjou and Maine connect Brittany to Paris and by treat-



THE CATHEDRAL AT ANGERS.

ing the three as one we may to advantage take Paris as our starting point. In tracing the architecture of this region from the reign of the Gallic tribes to the present era we pass through a development of some twenty centuries. We have in there markable alignments of dolmens and menhirs around Carnac a wonderful example of the great ingenuity and skill of a pagan race. In time

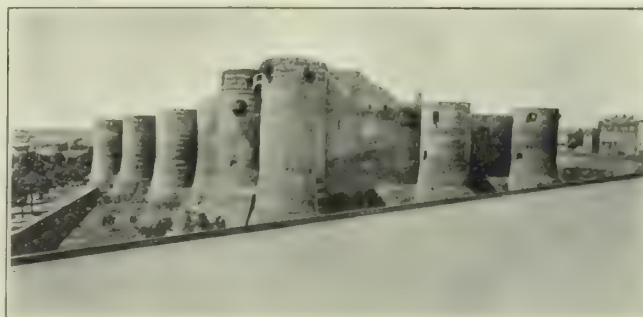
all Gaul became subservient to the classic Romans who brought with them laws that meant enlightenment as well as subjection. After the Roman period came the Normans with a resistless energy that endowed the northern part of France with countless institutions that live to-day. Feudalism arose and enriched the country village as well as the cities and towns. These mediæval lords crowned the hilltops with impregnable castles of splendor and fortified the cities with walls and towers. The peasantry became prosperous and lavished their savings

in magnificent churches with their calvaries and ossuaries. This developed love for grandeur accepted eagerly the spread of the renaissance. As a result, we find to-day within a short radius, a dolmen of fabulous antiquity, a Gothic cathedral of the purest art, a chateau of feudal splendor, and an old timber house most picturesque.

There is considerable interest attached to a visit of the Carnac region with its vast megalithic monuments. Menhirs, dolmens, and tumuli remain in such abundance—in spite of the fact that the vast majority have been confiscated by the natives—that we are amazed at the skill and arduous labor that must have been necessary to

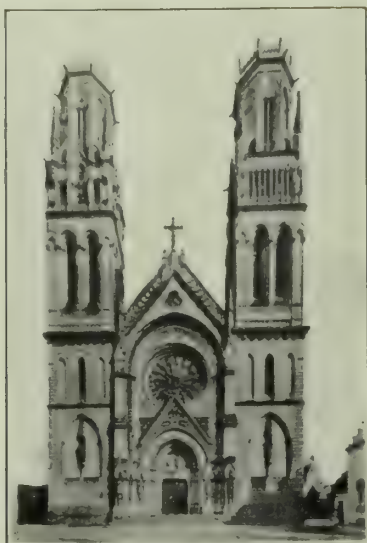


A MEDIEVAL AND FEUDALISTIC REMNANT.



CHATEAU OF ANGERS.

erect such powerful monuments in pre-historic times. Some attribute these works to the Druids whose temples of worship were found in the freedom of the forests. At any rate we seem to feel an endeavor to imitate by these crude geometrical rows of stone those ancient cloisters of trees. The alignment at Kermario consists of over a thousand rough uncut pillars in ten rows, while that of Menec has eleven rows with even more stones. Surely these are remarkable memorials of a barbaric age when

CHURCH OF ST. JOSEPH AT
ANGERS.

such huge bodies had to be handled with the sole assistance of rollers.

In the dolmen of Corcorro at Plouharnel we have one of the largest in Brittany. The chamber measures twelve by twenty-four feet, and originally contained antiquities of great value. At Locmariaquer near by is the chief dolmen of Mané Lud with a grotto underneath. Here also are two very large tumuli with vaulted chambers

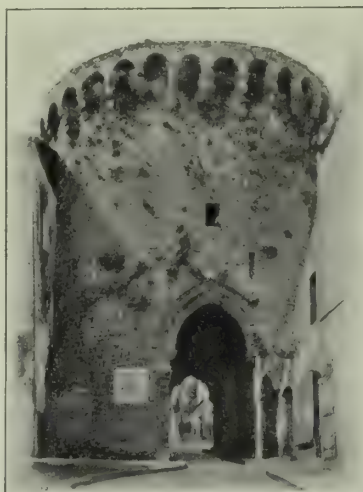
church of the Holy Sepulcher at Jerusalem. Besides the above, the eleventh century produced the cathedral at Laval and Locmaria at Quimper, both splendid monuments to this style. The city of Angers contains a rich collection of romanesque work in the ruins of the richly sculptured St. Aubin, the remarkable bishop's palace, and the ancient hospital of St. Jean. Of the modern buildings at Angers the churches

A QUAIN OLD STREET IN
DINAN.

upheld by stones thirty-five feet high. Implements and Roman relics of all kinds were found in the various tombs. An extremely interesting fact exists at Bossenno near Vannes. The old brick and tile of the Romans are found to be in as excellent a state of preservation as if recently made. A proof of their durability is evidenced by the natives who use these Roman tile for the closing of water channels in preference to the modern tile which last only a few years.

One of the few monuments of the Carolingian period exists at St. Philibert de Grandlieu. Here is the earliest Christian church of stone and mortar, dating from the tenth century. The chief ornamentation of this church consists of three rows of red brick alternating with one of stone.

Another fragment of great interest is the convent of St.



A FEUDAL PORTAL AT DINAN.

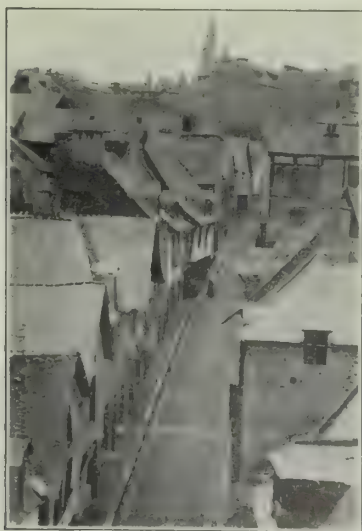
Martin at Angers, which is supposed to be a relic of the ninth century.

The romanesque style furnishes some excellent edifices among which one of the best examples to be found anywhere in western France is the eleventh century church of St. Sauveur at Dinan. Especially noteworthy is the portal with its fine carving. The round church of St. Croix at Quimperlé is modeled after the

of St. Laud, nineteenth century, and La Trinite, sixteenth century, present the regular Angevin style. The twelfth century has left us the wonderful central tower of St. Sauveur at Redon and the abbey at Fontevault, which is lavish in sculpturesque ornament. Many towns like Chemillé, Loctudy, Le Mans, Pré-en-Pail, and Cunault have splendid examples of the romanesque, while Brest possesses a very interesting church of the transitional style in St. Matthieu.

The intermingling of the Romance and Frankish races have left in these provinces an architecture vastly different in character to Normandy on the north and Poitou on the south. We discover the influence of both these people, but so modified as to impress one of the skill of the native archi-

itects. The cause for this change is attributed to the abundance of granite and the scarcity of other stones. On account of the difficulty experienced in cutting the granite we have many structures which, while Norman in character, still possess an individuality of their own. Yet in the various churches of a later period we see how even the hardness of the stone did not prevent the spires and façades from being richly decorated.



AN OLD STREET OF DINAN.



AN OLD STREET OF DINAN.

There are noted examples of the wonderful adaptability of ornament in the noble towers of the well known fourteenth century churches at St. Pol-de-Léon. Nantes and Le Mans in the twelfth century provided several ecclesiastical buildings with most lavishly sculptured portals.

The town of Chartres possesses one of the finest Gothic cathedrals in Europe. One cannot help but admire the simplicity and grandeur of this edifice, with her magnificent spires of harmony and proportion. At Lamballe there is an especially fine interior which merits careful study. Besides the churches just mentioned, the thirteenth century has produced the splendid examples of monastic architecture at Beauport, the old priory at Lehon, the cathedral at Dol which ranks as the finest monument of undecorated Gothic in existence, and the cathedral at Quimper whose beautiful spires adorn the finest and largest church in Brittany.

The fourteenth century Gothic has several churches of great nobility. The best examples are found at Tréguier whose cathedral cloisters are well preserved and the most extensive to be found in these provinces, and at Quimperlé whose church, St. Michel, is graced with lacelike decorations. At Le Folgoët there is a fine type of the fifteenth century style with elaborate carvings of natural

forms. Of later Gothic the church at Hennebont has an ornamental spire three hundred feet high, while the churches at Le Croisic, Grâces, and Guérande contain some extraordinary sculptures.

One of the greatest charms of western France lies in the beautiful stained glass. Nearly every

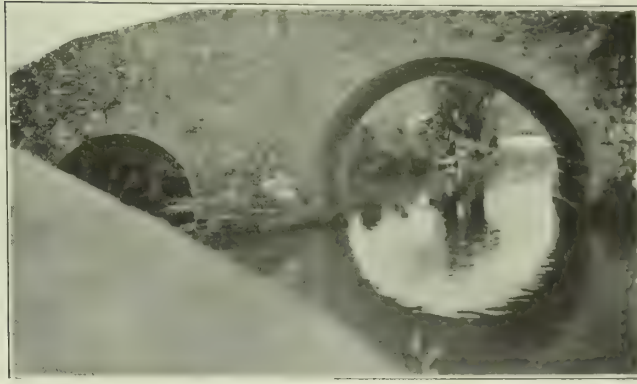
twelfth, thirteenth, and fifteenth centuries. Chartres has never been surpassed in the color and brilliancy of the early thirteenth century glass. The

large and majestic rose window in the west front has an individual charm on account of the boldness of design and the clear depth of its coloring, while the Jesse window ranks equally as well. This cathedral at Chartres possesses over a hundred windows of most superb effects. The cathedral at Dol has the large window of the choir filled with choice stained glass of the thirteenth century, while Paimpol has a superior rose window of the fourteenth century. Of the fifteenth century the noted examples are found at Alençon, La Faouet, and Fougères. The chapel of Cran near Gourin has six remarkably well preserved windows of the sixteenth century which rival Ploërmel's celebrated glass of the same century.

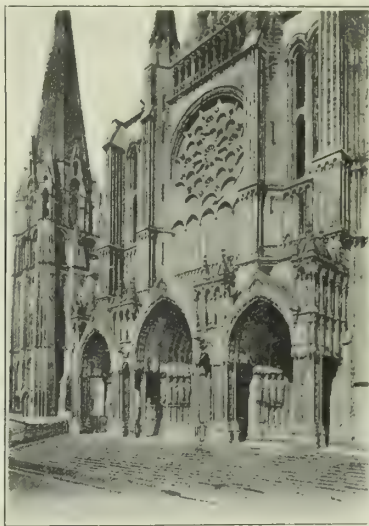
Of modern glass little of commendation can be said, although St. Malo, Quimper, and Le Mans possess some very good examples, while the Chapelle Royale at Dreux contains some magnificent windows by Wattier, Delacroix, Flandrin, and Larivière.

In Brittany are found a number of mediæval castles which illustrate the tremendous power that opulence and temperament exerted in the direction of military architecture. The feudal lords built châteaux for fortifications as well as homes. There is no more imposing relic of a Breton fortress than the château de Sucinio, thirteenth century, whose crenelated towers have narrow openings and breaches constructed

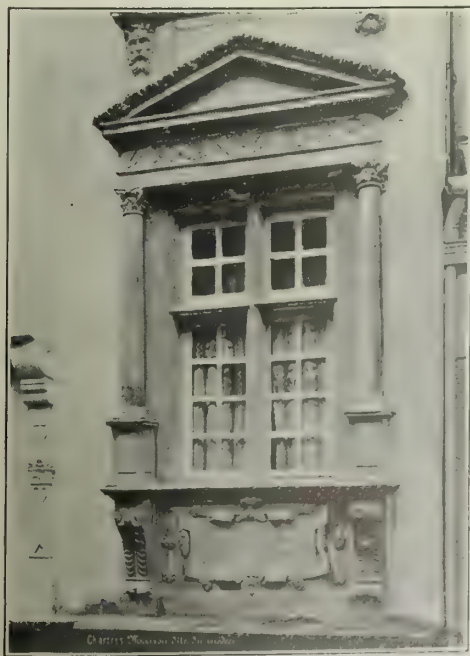
town glories in relics of this celebrated method of symbolic art. We can only select a few of the finest examples for mention, although we would recommend that particular attention be paid to this style of art, for it is a portrayal of mediæval archaeology. The most ancient glass is that of the eleventh century at Le Mans, while the cathedral at Angers has some magnificent work of the



ALONG THE PICTURESQUE CANAL AT DINAN.



SOUTH PORTAL, CATHEDRAL AT CHARTRES.



DETAIL OF WINDOW AT CHARTRES.



A RENAISSANCE CLOCK TOWER, CHARTRES.



DETAIL OF FAMOUS GOTHIC
STATUES AT CHARTRES.

felt from the feudal system. The entrance is flanked with machicolated towers whose massive strength is most impressive. On the interior is an exceptionally finished tourelle of the sixteenth century renaissance. This castle at Vitré is, like Carcassonne, in Southern France, an eminent monument to the genius and skill of the middle ages. At Nantes we have a powerful fortress of Francis II, with six of the seven original towers remaining.

In the château of Josselin we find an example of the severest type of military architecture. An exquisite façade of the early renaissance faces the river with its three round towers built solidly on a rock foundation. The court is treated in the late ogival style when ornament was at its greatest exuberance. Charles IX and Henry III built at Kerjean the largest château in Brittany, having an enclosure of some forty thousand square yards. The castle is purely Breton in character, as seen in the monumental entrance and the one conspicuous feature is the chapel, which has a superior campanile.

for the mouths of cannon. Combourg of the thirteenth century is another well preserved monument of this style. There are four crenelated towers joined by an equal number of bâtiments, all of which form the enclosure of a grand old court. The castle at Vitré, founded in the eleventh century and reconstructed in the fourteenth, also portrays the powerful influence everywhere

The last château worthy of special mention is La Bretesche, which has been well restored in the same style as the original. Two of the eight massive round towers at the entrance show how impregnable they must have been in former years with their walls nearly ten feet thick.

Mediæval and military architecture has still a greater claim on this part of France, for feudalistic remains of great importance are scattered everywhere. At Guérande is another Aigues Mortes whose massive walls and several entrances are guarded by machicolated towers of strength and picturesqueness. Towns like Tonquédec, Brest,



VIEW OF CHARTRES.

Châteaubriant, Angers, Elven, and Mayenne have admirable examples of mediæval castles with massive donjons, beautiful keeps, machicolated towers, and crenelated walls. Nowhere in northern France can be found a better walled town than Fourgères, while St. Malo, Ploërmel, Laval, and Vannes all have military towers and frowning ramparts. Dinan, whose thirteenth century walls extend over a mile long, has three celebrated gateways. Other famed entrances are Porte Guillaume at Chartres, the



OLD HOUSE AT CHARTRES.

ancient city gates at Rochefort-en-Terre, Porte Mordelaise at Rennes, and the great fortified gateway at Hennebont.

In contrast to these ruined bulwarks of feudalistic days we have a modern example of military architecture at Brest which has one of the most spacious and safest roadsteads in the world. This remarkable fortress harbor is fourteen miles long and seven miles in width, with



A FEUDAL MONUMENT AT CHARTRES.



THE CHATEAU OF COMBOURG.



DETAIL OF PORTAL, CHATEAU JOSSELIN.

a narrow entrance three miles in extent. The outside of this naval port is commanded by modernized fortifications containing some five hundred guns, while the roadstead itself is securely protected by the city forts. France is justly proud of her chief naval station,

For other specimens of this style we have illustrious buildings at Rennes, Pont, Scorff, and Châteaubriant.

On the church at Solesmes there is an exceptional array of sculpture. This little abbey is ranked as one of the paramount examples of renaissance,



DORMER WINDOW OF CHATEAU JOSSELIN.

which is one of the most important military ports in the world.

The renaissance work throughout these provinces assumes quite a provincial air. There are many curious and admirable examples that are both ingenious and decorative. Doubtless the finest type and one that merits marked attention is the château at Josselin. The one façade especially noteworthy faces the court and presents a long row of two-story dormers, which pierce the steep roof from a position directly over the wall. Besides Josselin there are other châteaux of pure and graceful renaissance located at St. Ouen, Mezanger, and Laval.

The greater part of the renaissance art was developed in minor work. We see touches of superior and exquisite workmanship in the cities, where the small houses are adorned with a novel and extremely rich ornamentation. Chartres has several mansions that are remarkable, both on the exterior and interior. In rue des Écuyers is a charming sixteenth century staircase, and in la rue du Grand-Cerf is a maison of considerable merit throughout. The Hôtel de Prince at Angers, the Hôtel du Grabatoire and the Maison Tambour des Pompiers at Le Mans are among the finest monuments of domestic renaissance.



CATHEDRAL OF DOL.

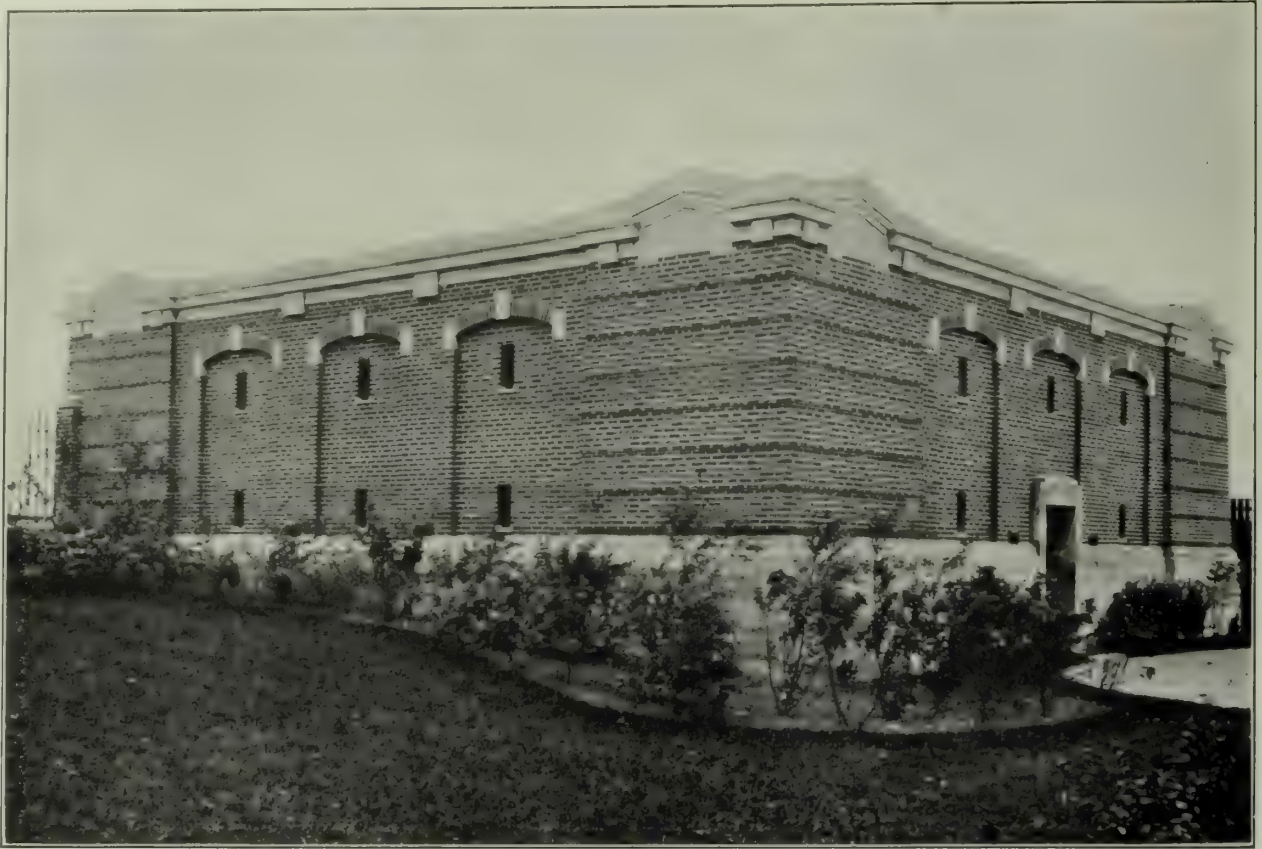


NORTH FACADE OF ST. COVENIN AT QUIMPER.

Another church of like importance is St. Armel at Ploërmel, with choice works of art in the portals of Francis I. Besides the above the interior of the cathedral at Nantes, the wooden staircase in La Trinité at Angers, the ornate pulpit at St. Thégonnec, the splendid carvings at Guimiliau, and the tower and spire at Landivisiau, all are elaborate works of the renaissance.

There are many examples of fine carving in this section of France, both in stone and wood. Some superior work

is seen in the tombs at Nantes; the early renaissance tomb of the Duke of Brittany ranks among the best monuments in existence, while the worthy tomb by Boitte is equally famous as a work of modern renaissance. Other meritorious tombs are found in the Chapelle Royale at Dreux, Solesmes, Ploërmel, and Quimper. Among the statues of importance may be mentioned the one of Victor Massé by Mercier, that of Jean de Cheverus by David d'Angers at Mayenne, and the war monument by Crank and Croisy at Le Mans. St. Brieuc has many statues by Oge, and Nantes has a fine group by Driollet. For figure sculpture the west portals of Chartres form the famous series of early Gothic statues.



A DOCUMENT BUILDING FOR THE EDISON ELECTRIC ILLUMINATING COMPANY, BOSTON.
Winslow & Bigelow, Architects.



A CHOCOLATE FACTORY, MILTON, MASS.
Winslow & Bigelow, Architects.

Editorial Comment and Miscellany.

THE Springfield (Mass.) Municipal Building Commission chose on November 28 the design of Pell & Corbett of New York from among the ten in the final competition for the group of buildings to be erected on the north side of the Court Square extension. The design proposes three structures: in the center a clock tower 274 feet high; upon the right or east a municipal office building; upon the left a town hall capable of seating 3,000 persons. Each of these buildings has a frontage of 115 feet and they are 92 feet distant from each other. In the center of this space is the clock tower. The entire cost of the group is estimated at \$1,100,000. Other firms in the final competition were: E. C. & G. C. Gardner, Kirkham & Parlett, and George R. Pyne of Springfield; Cass Gilbert, Hale & Rogers, and Lord & Hewlett of New York; Peabody & Stearns of Boston; and Lewis R. Kauffman and Evans & Bright of Philadelphia.

WARREN & WETMORE have begun legal proceedings to have set aside the award made by the Commission of Award for the new Sing Sing State Prison to Architect William J. Beardsley of Poughkeepsie. Many architects in New York and even a member of the Commission of Award have asserted that there was unfairness in the manner in which the decision was made. Warren & Wetmore's designs, it will be remembered, were considered second best; and that firm's attorneys, in endeavoring to have them declared the winner, maintain that the new prison cannot be built after the Beardsley design for \$2,000,000, which is the amount of the appro-



DETAIL BY J. F. O. PRIDMORE, ARCHITECT.
Northwestern Terra Cotta Company, Makers.

priation. They also declare the action of the Commission of Award was unconstitutional, inasmuch as the law creating it was a local law and defective as to title. It will be interesting to watch the judgment of the court on the first point in the plea of Warren & Wetmore's attorneys, for there has been no little doubt upon the general question whether an architect's plans imply an accurate guarantee that they can be carried out for a pre-determined sum.

SECOND BAPTIST CHURCH, ST. LOUIS.

The problem called for an auditorium capable of seating not less than twelve hundred people, with the necessary accessories, such as pastor's room, clerk's office, reception room, foyer, lobby, stair halls, and vestibules; a room for prayer-meetings and the general and social gatherings of the congregation during the week, to take care of at least four hundred persons; a large sized room for a ladies' parlor; a boys' club; a dining and entertaining room, with kitchen, serving rooms, and provision for a stage; a Sunday school room capable of accommodating one thousand, and living quarters for the caretaker and his family.

The auditorium was placed at the corner of Kings-highway and Washington avenue. The secondary building, or chapel, was placed to the south at a distance from the southwest corner of the lot, approximately symmetrical with the position of the church at the north. Connection was obtained by an open loggia on the west and a closed one on the east, thus forming a courtyard or cloister, while, as the crowning feature of the whole composition, and upon the axis of the court on the east was placed a campanile (a special gift) which unifies the whole scheme.

In detail the church is planned as a basilica with vaulted side aisles and clerestory, but with the addition of a large western gallery and corresponding to it on the east the choir and organ loft, baptistry, and pulpit platform, and back of these dressing and toilet rooms, clerk's office, pastor's reception room, and a study.

Instead of one central entrance, two have been provided with vestibules and lobbies directly connected with the stairs to the gallery, thus leaving space for the foyer



LANTERN FOR RODEF SHOLEM SYNAGOGUE, PITTSBURGH
Palmer & Hornbostel, Architects.
Made by Rookwood Pottery Company.



ADMINISTRATION BUILDING, PARENTAL SCHOOLS,
FLUSHING, L. I., N. Y.

C. B. J. Snyder, Architect.
Roofed with Ludowici-Celadon Tile.

room stretching across the west front and underneath the gallery. This room, it is believed, will be the gathering place of those who desire to greet their friends before and after service, while on occasions of large attendance it can readily be made a part of the auditorium by lowering the sash of the glazed partition of separation.

The decorating and glass of the auditorium find their strongest note in the treatment of the supporting columns of the clerestory, which are of a green scagliola resting on black marble bases and plinths and crowned by capitals of old gold.

No memorial windows are used, so a uniform and geometrical design was adopted for all the windows of each kind, the only variation being the conventionalized representation of the fruits and flowers of Palestine, which are used in the tympana of the main aisle openings.

The general tone of the glass used is opalescent of various warm shades, while the painted ornament of the interior is of tones of green and dull red picked out with orange upon a warm gray background, all done in a flat way suggesting mosaic and in drawing following closely the early Italian renaissance rather than Gothic.

The woodwork of the room is of fumed oak of a soft brown color, not dark, nor with any suggestions of yellow, but rather of a grayish tone. Springing from the clerestory walls and resting on large corbels

done in dull gold, are the cased and paneled wood trusses following the curve of the two great arches, while the ceiling thus divided into bays is further subdivided into oblong plastered panels by molded purlins and rafters, the whole treated in a large way in tones of brown to harmonize with the wood, thus producing an effect of great size and simplicity.

In the study of the exterior design a controlling factor was the early adoption (for local and climatic reasons) of brick as the principal material, and naturally the motif was found in the superb brick architecture of Lombardy and north Italy in general.

The question of color was always a controlling factor, and its application in this instance is as follows: The base course at grade is of dark red Missouri granite; all other stone, which includes only the door jambs, sills, and shafts of columns, is of a rich yellow sandstone from Minnesota.

The brick selected was all of one burning and ranges from a rich, almost purplish brown to palest buff, and was laid in the following manner: The darkest bricks were used at the base in all cases, and as the building progressed in height a uniform shading was carried out, the lantern of the campanile having the ultimate degree of lightness of color. In the turning of the arches an effect of voussoirs has been obtained by the juxtaposition of light and dark bricks in groups, and patterns, diaper, and other details have been

worked out in the same way, giving great variety and interest, and always harmony of effect.

The terra cotta where used is of the same color and texture as the Minnesota sandstone. The roofs are of red tile. The courtyard has been laid out as a formal garden with an oblong pool terminated at the base of the campanile by a low wall fountain and surrounded by a molded curb of white stone.

The campanile is of the following dimensions: Base, 25 feet 6 inches by 25 feet 6 inches, height, 215 feet. Above the molded base course the die rises to a height of 30 feet with a straight batter of 9 inches, above this the shaft is 105 feet high constructed with an entasis of 9 inches, making it 18 inches smaller at the balcony stage. The octagonal lantern is 18 feet 6 inches in diameter, and 27 feet high, and the



DETAIL BY KIRKHAM & PARLETT, ARCHITECTS.
New Jersey Terra Cotta Company, Makers.



DETAIL BY NEW YORK ARCHITECTURAL TERRA COTTA COMPANY.

Neville & Bagge, Architects.



DETAIL FOR A MANTEL.

Lord & Hewlett, Architects.
Conkling-Armstrong Terra Cotta Company, Makers.

whole is terminated by a cylindrical drum with a conical roof and iron finial, the top of which is 215 feet from the ground.

NEW BOOKS.

The Cosmo-Studio Co., 437 Fifth avenue, New York, have just issued the first volume of their new work entitled "Cosmo Collection," which consists of duotone and hand colored reproductions of the most famous paintings and sculptures from all the schools of the world; architecture; portraits of people of permanent fame, their homes, and associated historic scenes; and popular subjects. Each picture is graphically described. The editor-in-chief for the work is George Hall Baker, M.A., Librarian Emeritus Columbia University, with whom are associated as art editors Harry W. Watrous, N.A., Secretary Academy of Design, and Will H. Low, N.A. The advisory board having in charge the publication of this work includes Charles de Kay, chairman, founder of the National Arts Club; Justice David J. Brewer, United States Supreme Court; Frederick B. McGuire, director, Corcoran Gallery of Art; Halsey C. Ives, director, St. Louis Museum of Fine Arts; Charles M. Foulke, regent, National Academy of Art, Washington, D. C.; Glenn Brown, secretary, American Institute of Architects; Dr.



DRISCOLL STORES, BOSTON.
Peabody & Stearns, Architects.
Front of white mat glaze terra cotta, Atlantic Terra Cotta Company, Makers.

kindred arts. Perhaps the chief value which a work of this sort would have for the architect is the concise description of the subject which accompanies each illustration. These descriptive articles are furnished by men known throughout the world as authorities in matters of art.

IN GENERAL.

Codman & Despradelle have been chosen as architects for the new Brigham Hospital which is to be built near the Harvard Medical School group, Boston. The selection was made by competition, in which many of the leading firms were participants.

The Texas State Association of Architects has been organized with the following officers: J. E. Flanders, Dallas, president; James Wahrenberger, San Antonio, first vice-president; A. O. Watson, Austin, secretary-treasurer. The object of the association, as stated in the constitution, is "to unite in one common fellowship the architects of the state of Texas to combine their efforts so as to

promote the artistic, scientific, and practical efficiency of the profession, and to cultivate and encourage the kindred arts and to correct unprofessional practices, and to help the cities of the state in securing proper building and sanitary laws."

Wheelock, Joy & Wheelock, architects, Birmingham, Ala., will dissolve their copartnership January 1. S. Scott Joy will take offices in the Farley Building, and desires manufacturers samples and catalogs.

Emil John and M. A. Schmidlin have formed a copartnership for the practise of architecture, with offices in the Monadnock Building, San Francisco.

The Western Brick Company have removed their executive offices from the Builders' Exchange to the Indiana Pythian



DETAIL BY HELMIE & HUBERTY, ARCHITECTS.

South Amboy Terra Cotta Company, Makers.



DETAIL BY WILLIAM H. GREEN, ARCHITECT.

Winkle Terra Cotta Company, Makers.

If one may judge the whole work by the standard set in the first volume it is safe to predict that this collection will surpass in excellence anything of its kind which has ever before been published. It constitutes an epitome of the world's best productions in architecture, sculpture, painting, and

Building, Massachusetts avenue and Pennsylvania street, Indianapolis.

Carter, Black & Ayers of New York will supply the brick for the new Nassau Hotel at Long Beach, L. I., L. R. Kauffman, architect; the new Carlton House and the Ritz-Carlton Hotel, New York City, Warren & Wetmore, architects; the new Martin Building, Broadway,

TO DRAUGHTSMEN: I have an opening for a first-class man at designing and general preliminary work. Permanent position for the right man. R. H. HUNT, Chattanooga, Tenn.

WANTED. By an architect in the South, a draftsman for general office work; one competent to supervise work. A good chance for the right man. Address, stating experience and salary expected, "Columbia," care The Brickbuilder.

A SENSIBLE GIFT

A GLOBE, MAP, OR ATLAS

is most practical. Will afford profit and pleasure to the entire family for years. Send for catalogue and price list.

Enclose this ad with 5 two cent stamps and we will send

POCKET MAP OF MANHATTAN

RAND, McNALLY & COMPANY

NEW YORK CITY

New York, Townsend, Steinle & Haskell, architects. Harvard bricks will be used in the Ritz-Carlton Hotel, and the general effect in the bond and jointing was studied from panels which were laid up especially for the purpose. This firm will place upon the market by the first of the year a new stiff-mud red brick of very rich color, made from Bradford shale.

The bricks used in the Second Baptist Church, St. Louis, Mauran, Russell & Garden, architects, illustrated in this issue, were made by the Hydraulic-Press Brick Co.

A SPECIAL ISSUE OF

The English Architectural Review

(London) illustrating

RECENT ENGLISH DOMESTIC WORK

will be published in December, 1908, in England, and will be distinct from the ordinary issues of the Review. The illustrations will be accompanied by plans and short descriptive notes in English, French, and German.

The work of over 50 prominent architects of England will be shown.

Edited by MERVYN E. MACARTNEY, F.R.I.B.A., F.S.A.

The publishers say:

"The enquiries for this issue, both from the United Kingdom and abroad, are already very numerous, and the examples given, not being the work of one particular school of architectural design, or limited to houses of a particular class, may be accepted as forming the most complete and representative collection of Modern English Domestic Work that has yet been published. The book may be confidently recommended to architects and the very large public which, at the present time, is interested in artistic houses and house-building.

"As the edition must be strictly limited, orders should be received as early as possible."

Price, bound in flexible cloth, \$2.25. Sent, express paid, on receipt of money.

Order from M. A. VINSON,

Representative of "The Architectural Review," London.

205 CANTON BLDG., CLEVELAND.

Annual subscriptions to "The Architectural Review," \$4.00.

Competition for a Hospital Building.

First Prize, \$500.

Second Prize, \$200.

Third Prize, \$100.

COMPETITION CLOSES JANUARY 16, 1909.

PROGRAMME.

The problem is a Hospital Building. The location may be assumed in any American city of about 50,000 inhabitants. The lot contains about five acres and has a frontage of 300 feet on the main avenue, leading to the city, which runs east and west. The part of the lot on which the building is to be placed is practically level. It is to be a block hospital with three floors above the basement. The height of the first and second stories is to be not less than 12 feet. No one floor above the basement is to contain more than 10,000 square feet, exclusive of sun rooms and approaches. The length of the structure, including sun rooms and approaches, cannot exceed 160 feet.

The following should be provided for in the plan:

Two ten bed wards for each sex in the Medical Department; two ten bed wards for each sex in the Surgical Department; and in connection with each of these wards two one bed rooms. Two ten bed wards for each sex in the Children's Department. A Maternity Department to accommodate six patients, two of which are to be in private rooms, and in conjunction with this department a delivery room and baby room.

In conjunction with the wards there should be provided service rooms or diet kitchens, nurses utility rooms, linen rooms, broom and medicine closets, clothing rooms and toilet rooms.

In addition to the private rooms provided for in connection with the open wards there should be at least eight private rooms for single patients.

Operating and accident rooms, with their adjuncts of anæsthetic, sterilizing, handage, instrument, nurses' work room, reception, and recovery rooms, also surgeons' dressing room and X-ray room.

Single bed rooms for at least twenty nurses; nurses' parlor; suite for superintendent and head nurse; bed room for two internes; reception room for patients; laboratory; drug room; cooking class room; kitchens; store rooms; laundry; bed rooms for fourteen domestics—four being males; dining room for staff and nurses; dining room for domestics; toilet rooms; small out-patients department; autopsy room; boiler room; fan room, and such other features as may suggest themselves to the designer.

The exterior of the building is to be designed entirely in Architectural Terra Cotta, employing colored terra cotta in at least portions of the walls.

The following points will be considered in judging the designs:

- Frank and logical expression of the prescribed material.
- Rational and logical treatment of the exterior.
- Excellence of plan.

In awarding the prizes the intelligence shown in the constructive use of terra cotta and the development or modification of style, by reason of the material, will be taken largely into consideration.

It must be borne in mind that one of the chief objects of this competition is to encourage the study of the use of Architectural Terra Cotta. There is no limitation of cost, but the designs must be suitable for the character of the building and for the material in which it is to be executed.

DRAWINGS REQUIRED.

On one sheet, at the top, the front elevation drawn at a scale of 8 feet to the inch. In the title of this elevation state which point of the compass it faces. On the same sheet, below the front elevation, the four floor plans drawn at a scale of 16 feet to the inch.

On a second sheet, at the top, the elevation of secondary importance drawn at a scale of 16 feet to the inch; immediately below half inch scale details of the most interesting features of the design. The details should indicate in a general manner the jointing of the terra cotta and the sizes of the blocks. The color scheme is to be indicated either by a key or a series of notes printed on the same sheet with the secondary elevation and details, at a size which will permit of two thirds reduction.

The size of each sheet (there are to be but two) shall be exactly 36 inches by 24 inches. Strong border lines are to be drawn on both sheets one inch from edges, giving a space inside the border lines 22 inches by 34 inches. The sheets are not to be mounted.

All drawings are to be in black ink without wash or color, except that the walls on the plans and in the sections may be blacked-in or cross-hatched.

Graphic scales to be on all drawings.

Every set of drawings is to be signed by a *nom de plume* or device, and accompanying same is to be a sealed envelope with the *nom de plume* on the exterior and containing the true name and address of the contestant.

The drawings are to be delivered flat at the office of THE BRICKBUILDER, 85 Water Street, Boston, Mass., charges prepaid, on or before January 16, 1909.

Drawings submitted in this competition must be at owner's risk from the time they are sent until returned, although reasonable care will be exercised in their handling and keeping.

The prize drawings are to become the property of THE BRICKBUILDER, and the right is reserved to publish or exhibit any or all of the others. Those who wish their drawings returned may have them by enclosing in the sealed envelopes containing their names, ten cents in stamps.

The designs will be judged by three or five well-known members of the architectural profession.

For the design placed first in this competition there will be given a prize of \$500.

For the design placed second a prize of \$200.

For the design placed third a prize of \$100.

We are enabled to offer prizes of the above-mentioned amounts largely through the liberality of the terra cotta manufacturers who are represented in the advertising columns of THE BRICKBUILDER.

This competition is open to everyone.

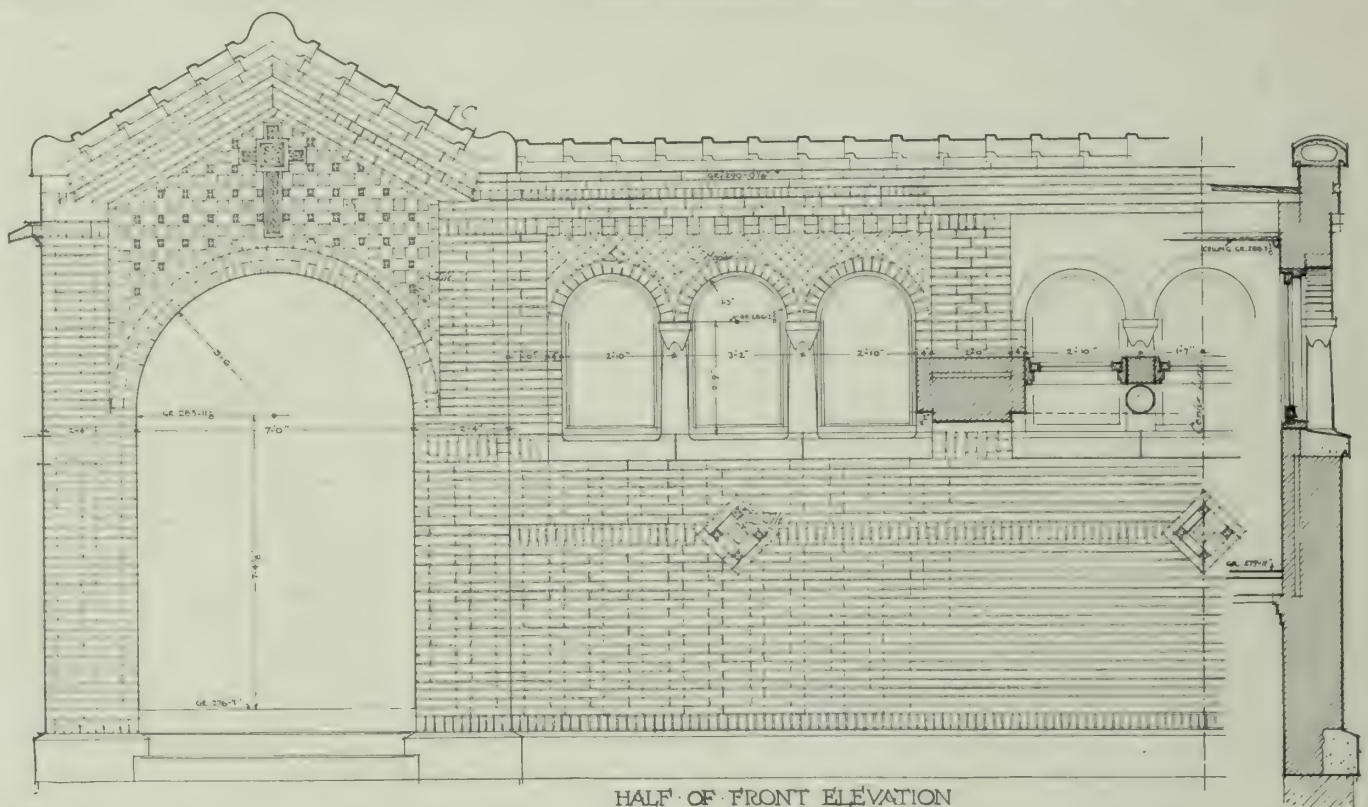


FIRST UNIVERSALIST CHURCH, ROCHESTER, N. Y.
CLAUDE BRAGDON, ARCHITECT.



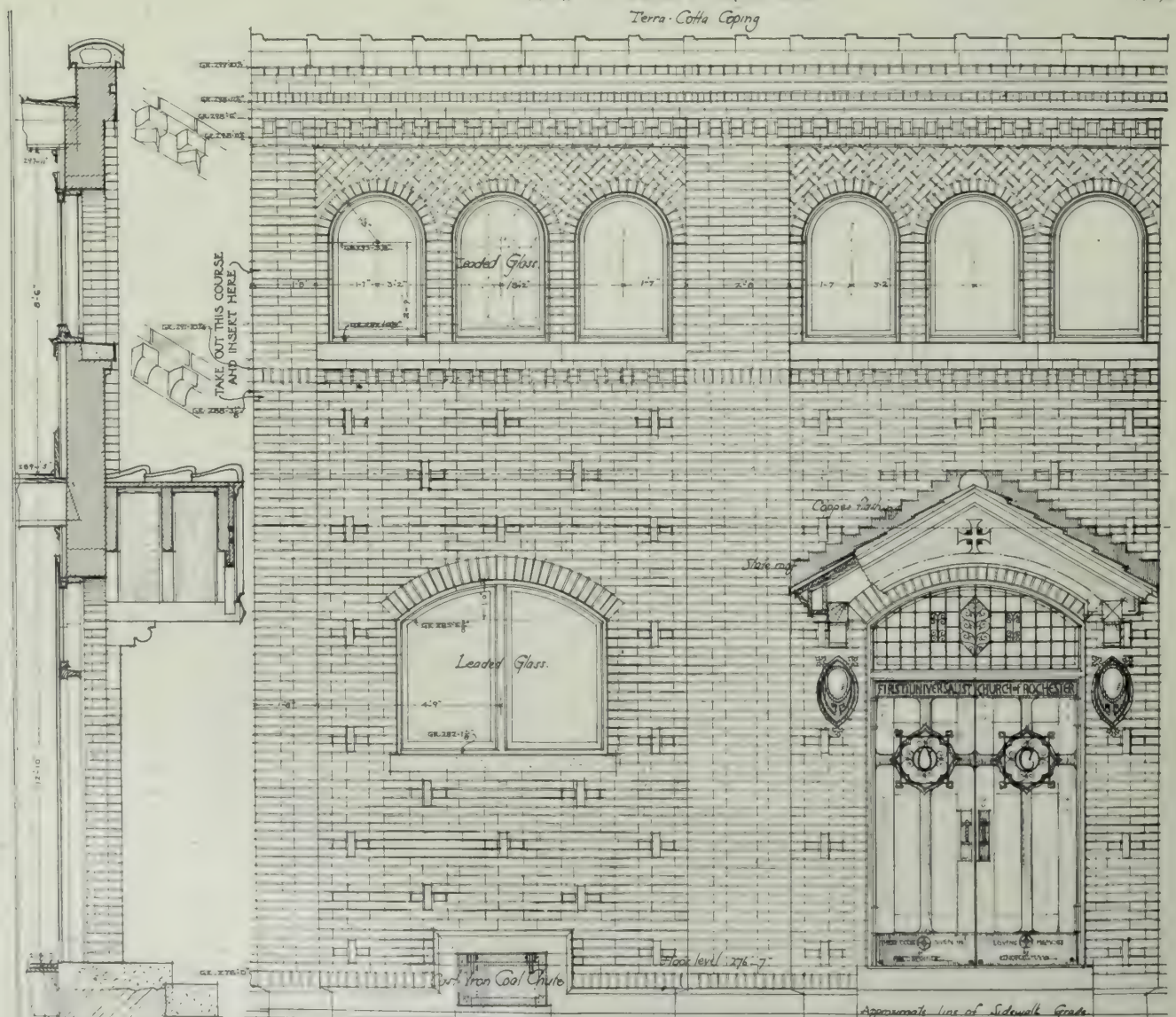
DETAILS OF BRICKWORK, FIRST UNIVERSALIST CHURCH, ROCHESTER, N. Y.
CLAUDE BRAGDON, ARCHITECT.





HALF OF FRONT ELEVATION

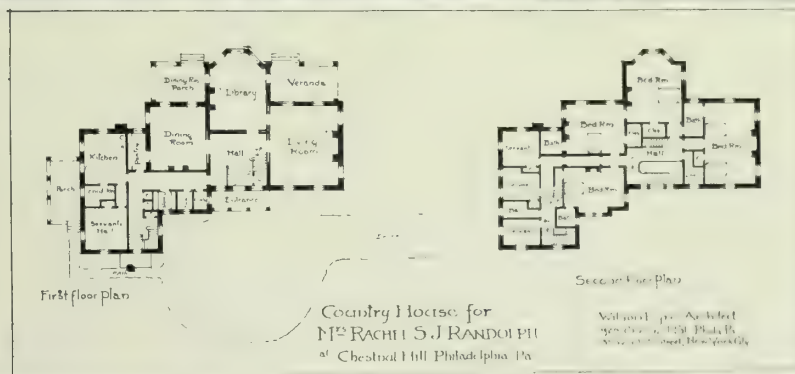
Terra-Cotta Coving



DETAIL OF BRICKWORK AND MEMORIAL DOORS.

FIRST UNIVERSALIST CHURCH, ROCHESTER, N. Y.

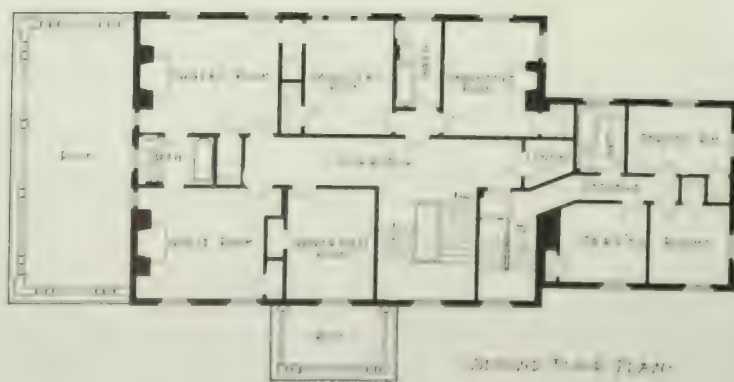
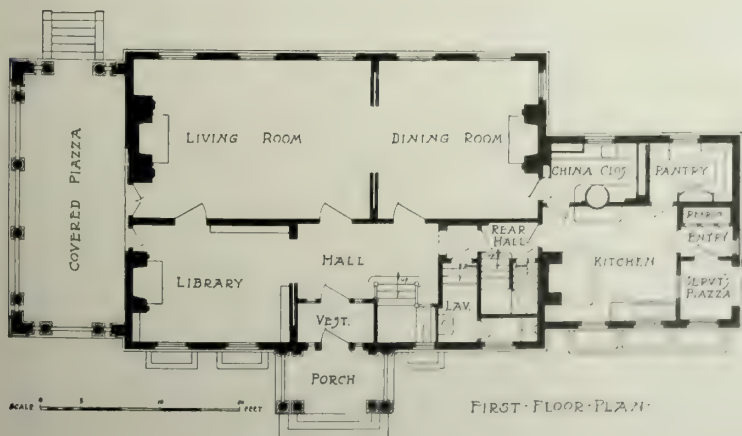
CLAUDE BRAGDON, ARCHITECT.



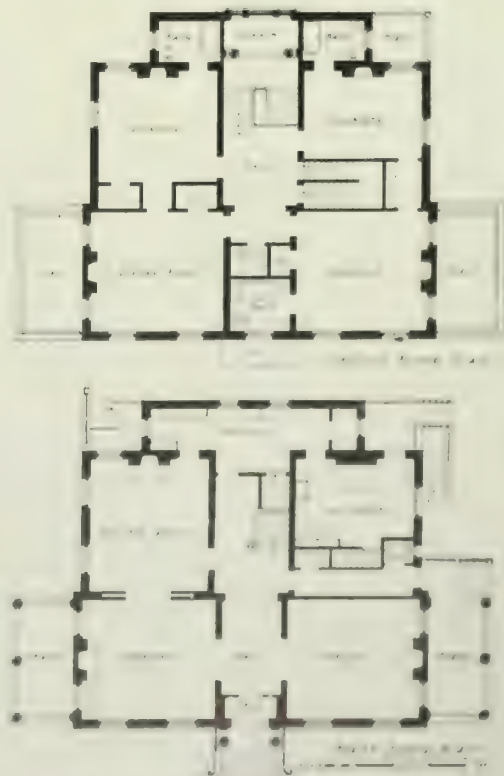




HOUSE, BROOKLINE, MASS.
SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.







HOUSE AT WASHINGTON, D. C.
WOOD, CLARK & DENNIS, ARCHTTS.



FRONT OF HOUSE.



REAR OF HOUSE.

HOUSE AT THOMPSON, CONN. SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.



FRONT PORCH HOUSE AT THOMPSON CONN

FRANKLIN MURRAY & GEORGE MORTIMER

THE BRICKBUILDER,
DECEMBER,
1903.





FIRST FLOOR PLAN

HOUSE, DES MOINES, IOWA



SECOND FLOOR PLAN

W. A. W. & B. W. W. ARCHITECTS.



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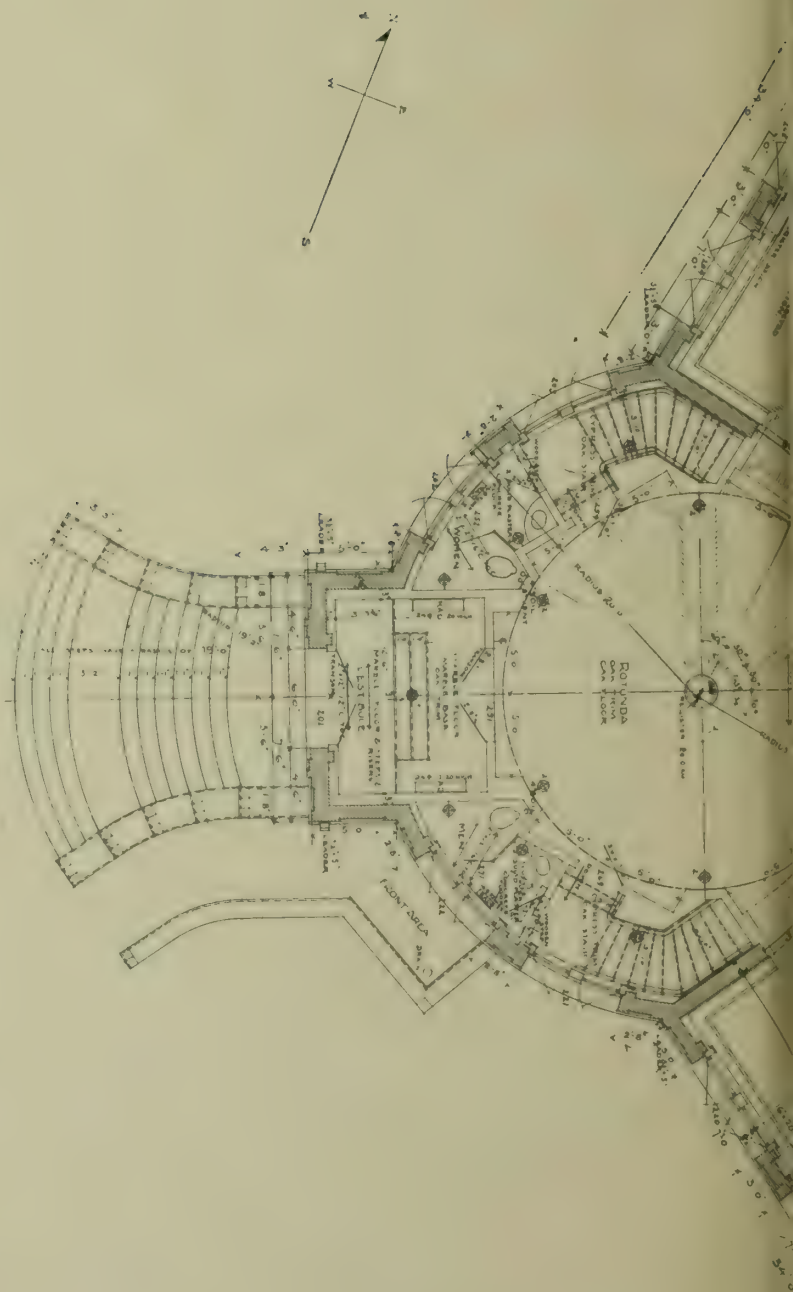


MAIN ENTRANCE FEATURE, WAR COLLEGE AND ENGINEER POST, WASHINGTON D. C.
MCKIM, MEAD & WHITE, ARCHITECTS.

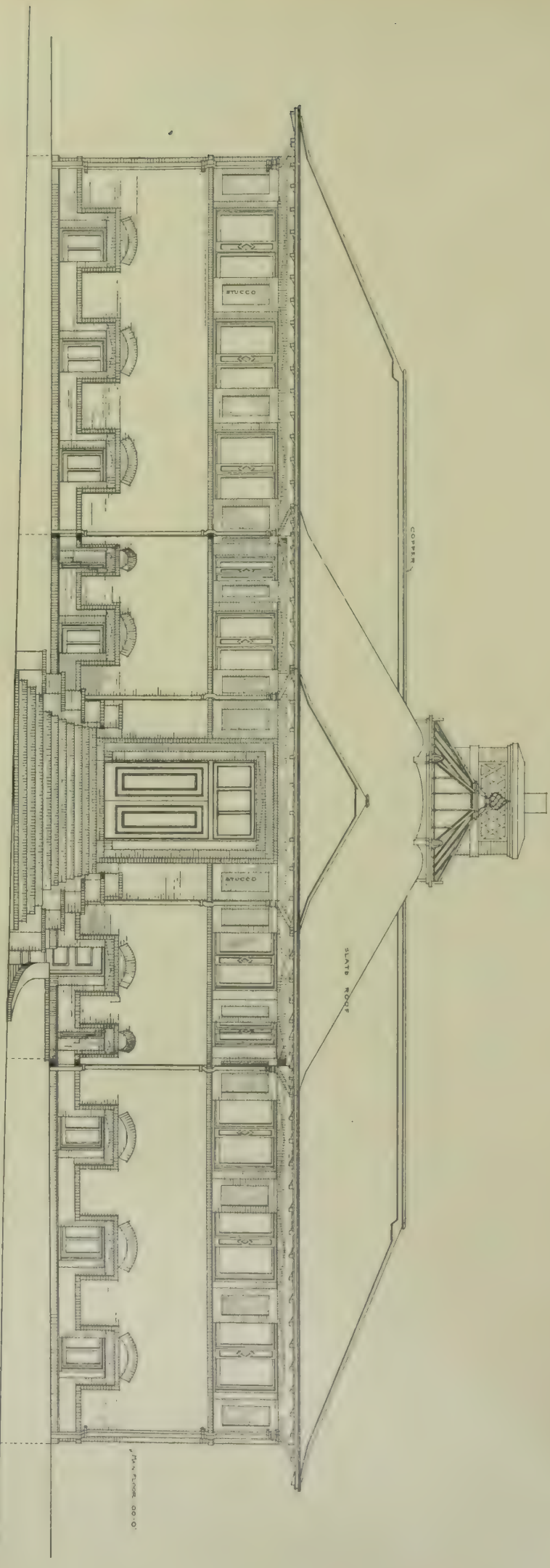


WAR COLLEGE, WAR COLLEGE AND ENGINEER POST, WASHINGTON D C
MCKIM, MEAD & WHITE, ARCHITECTS.



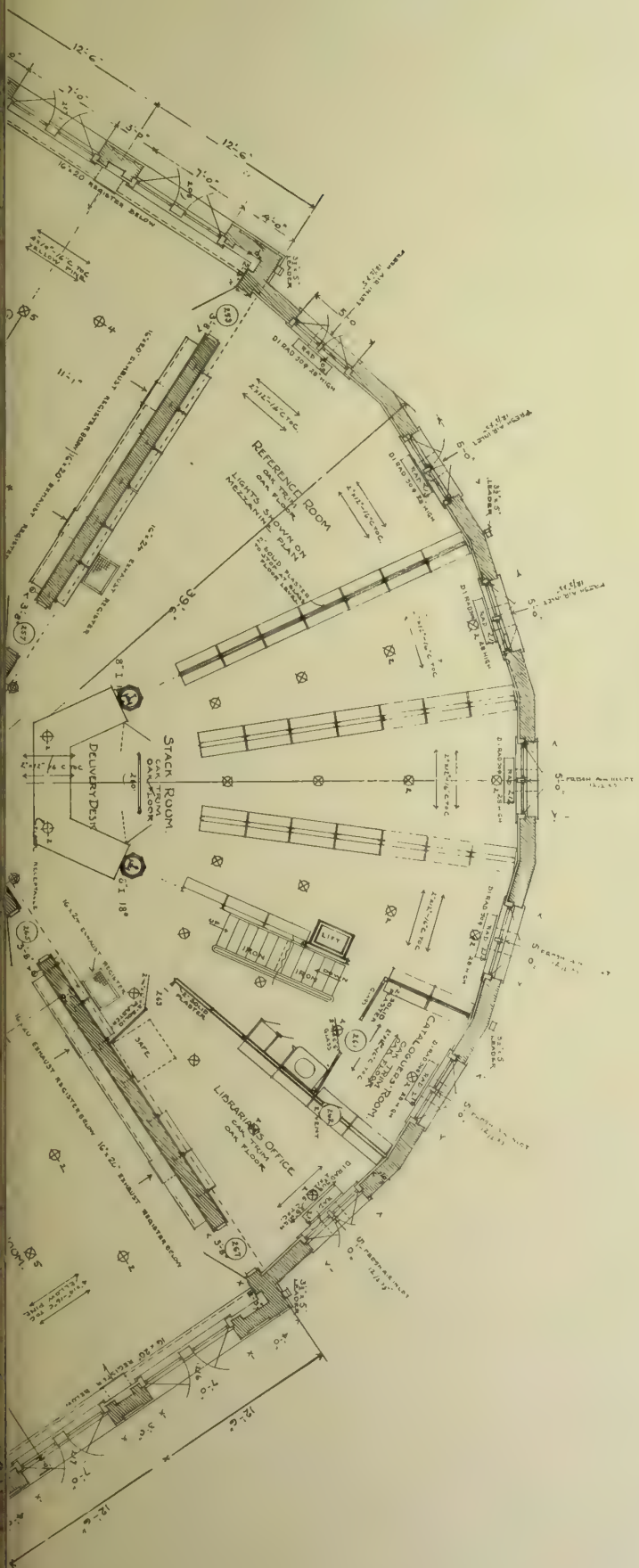


FIRST FLOOR PLAN.

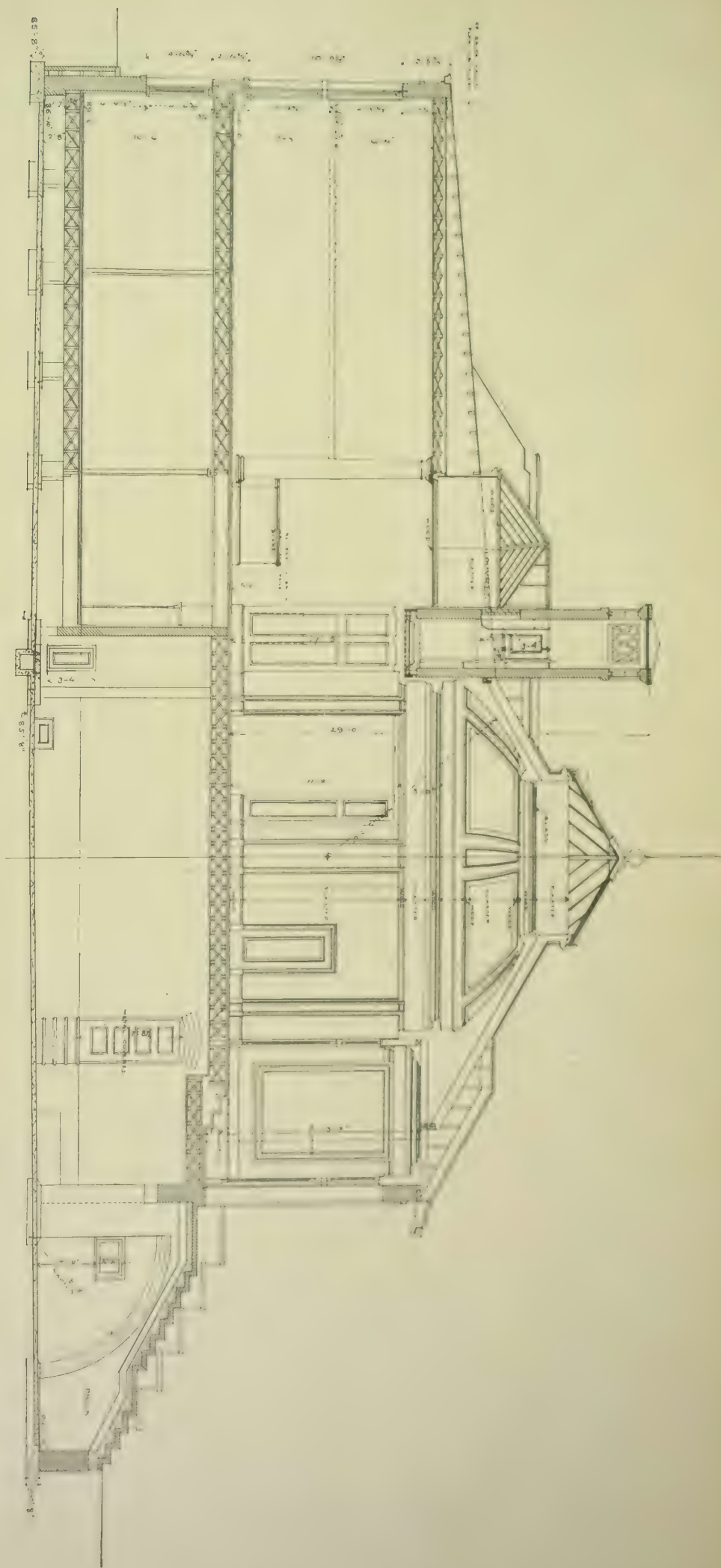


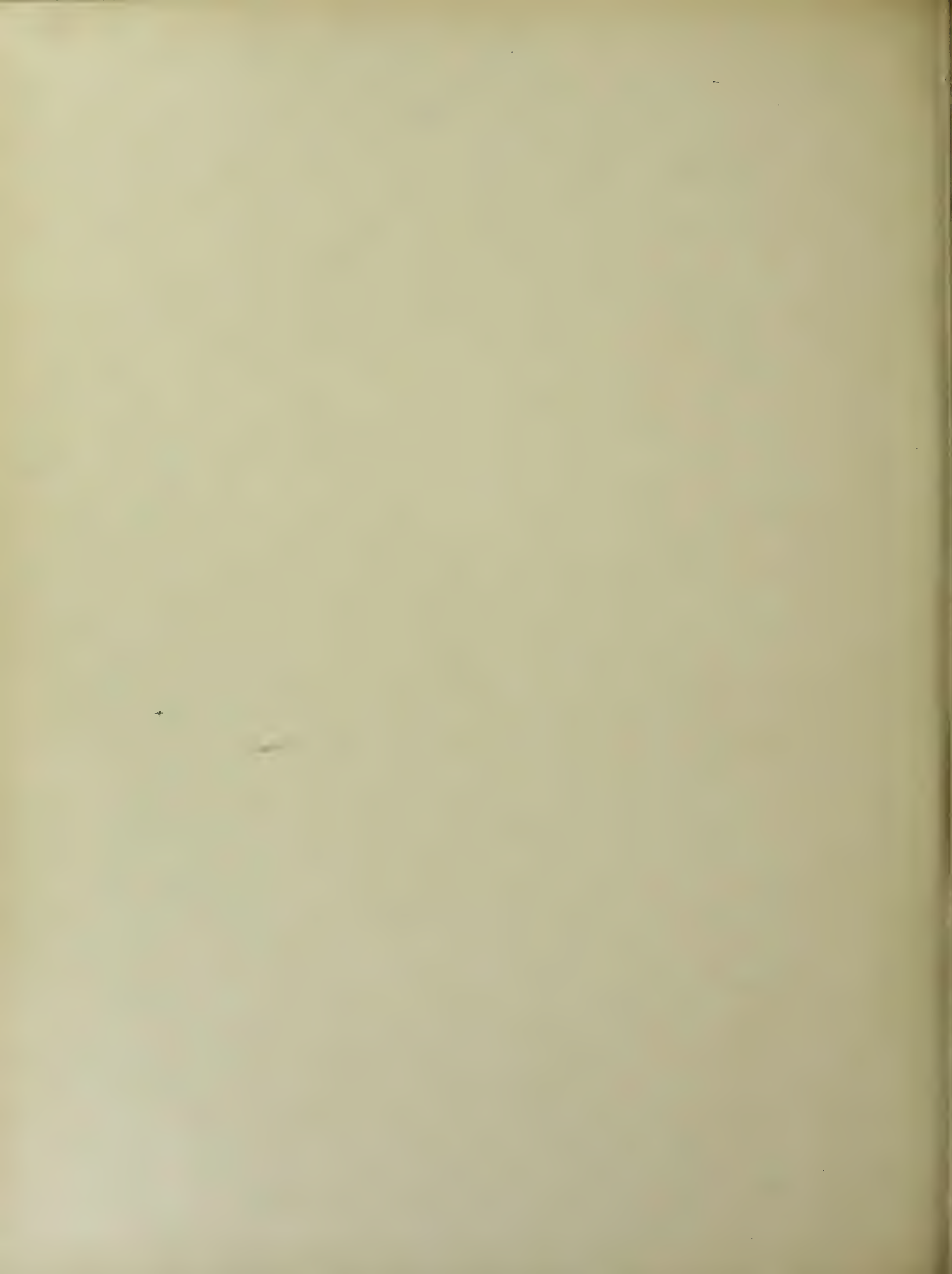
FRONT ELEVATION.

PUBLIC LIBRARY, MONTCLAIR, N. J. JOHN GALEN HOWARD AND D. EVERETT WAID, ARCHITECTS.



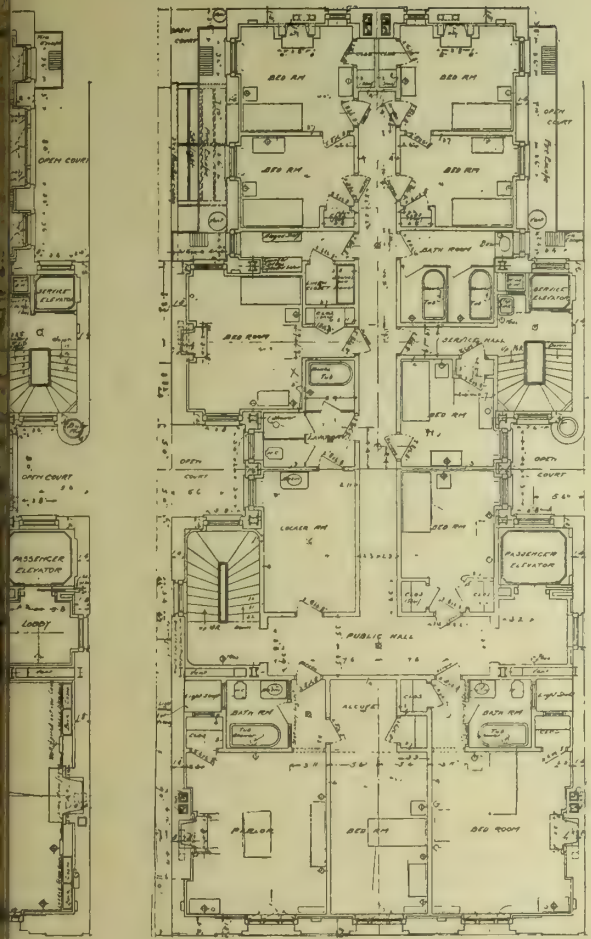
LONGITUDINAL SECTION.



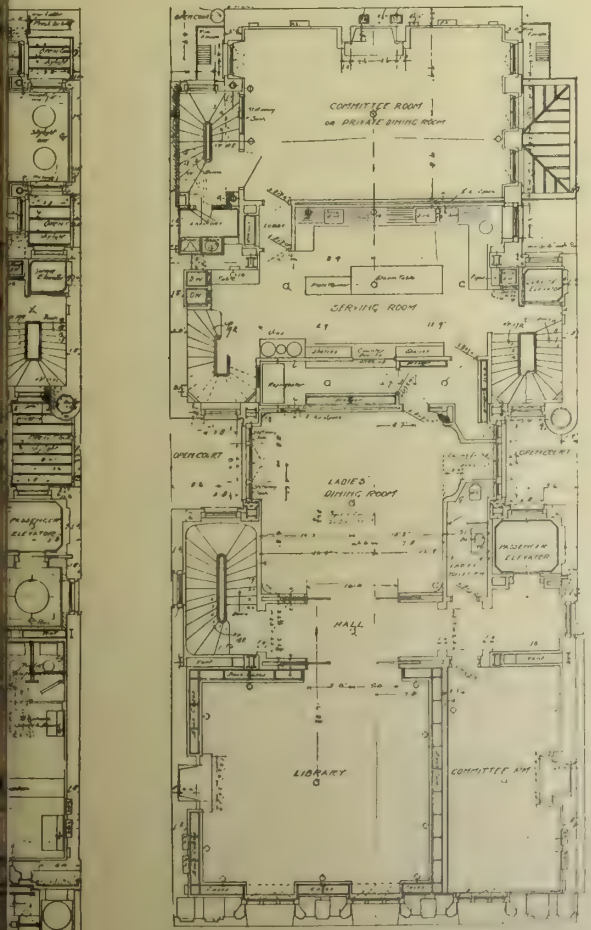




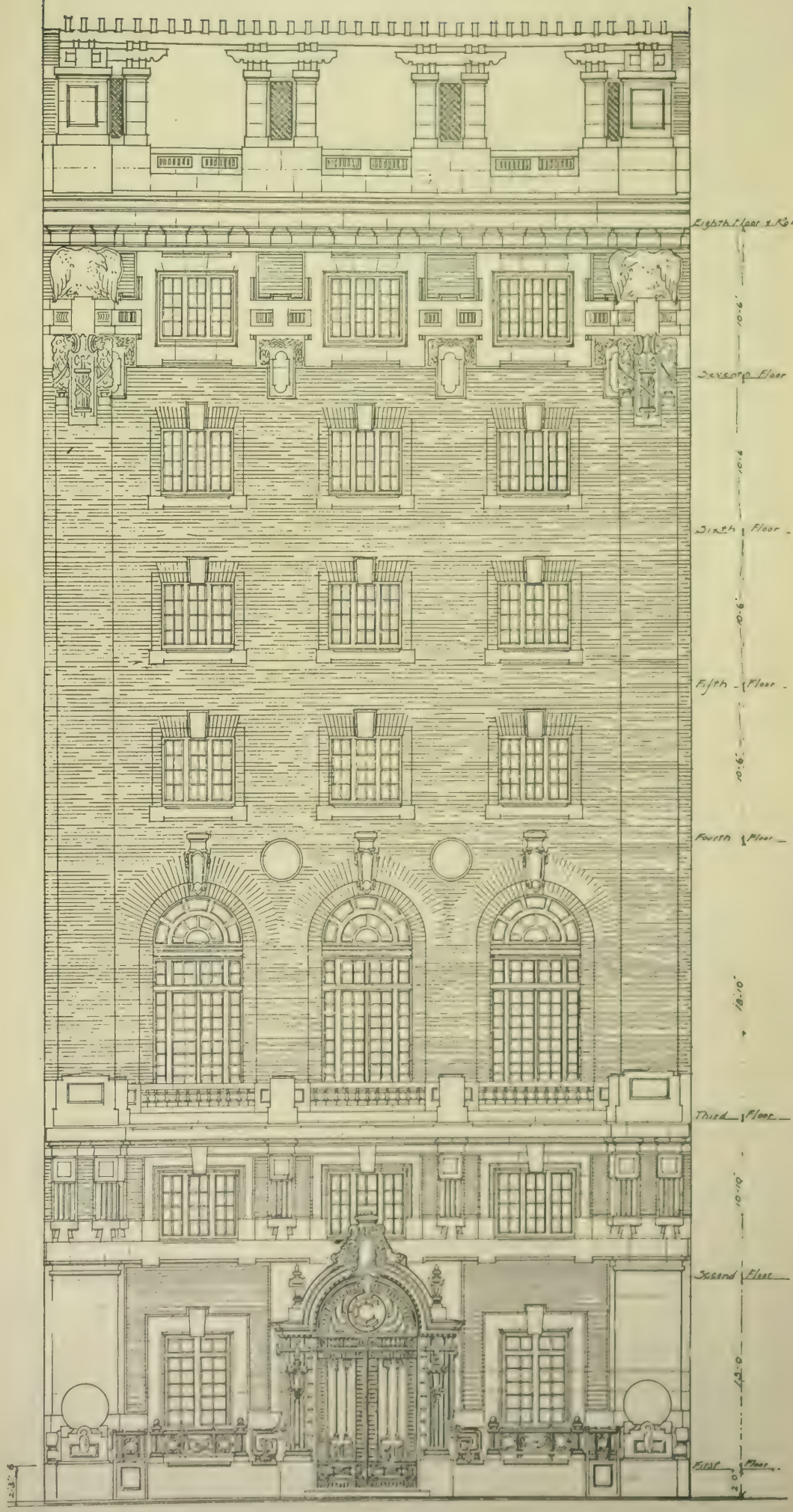
DETAIL, FIRST AND SECOND SERIES.



FOURTH FLOOR PLAN.

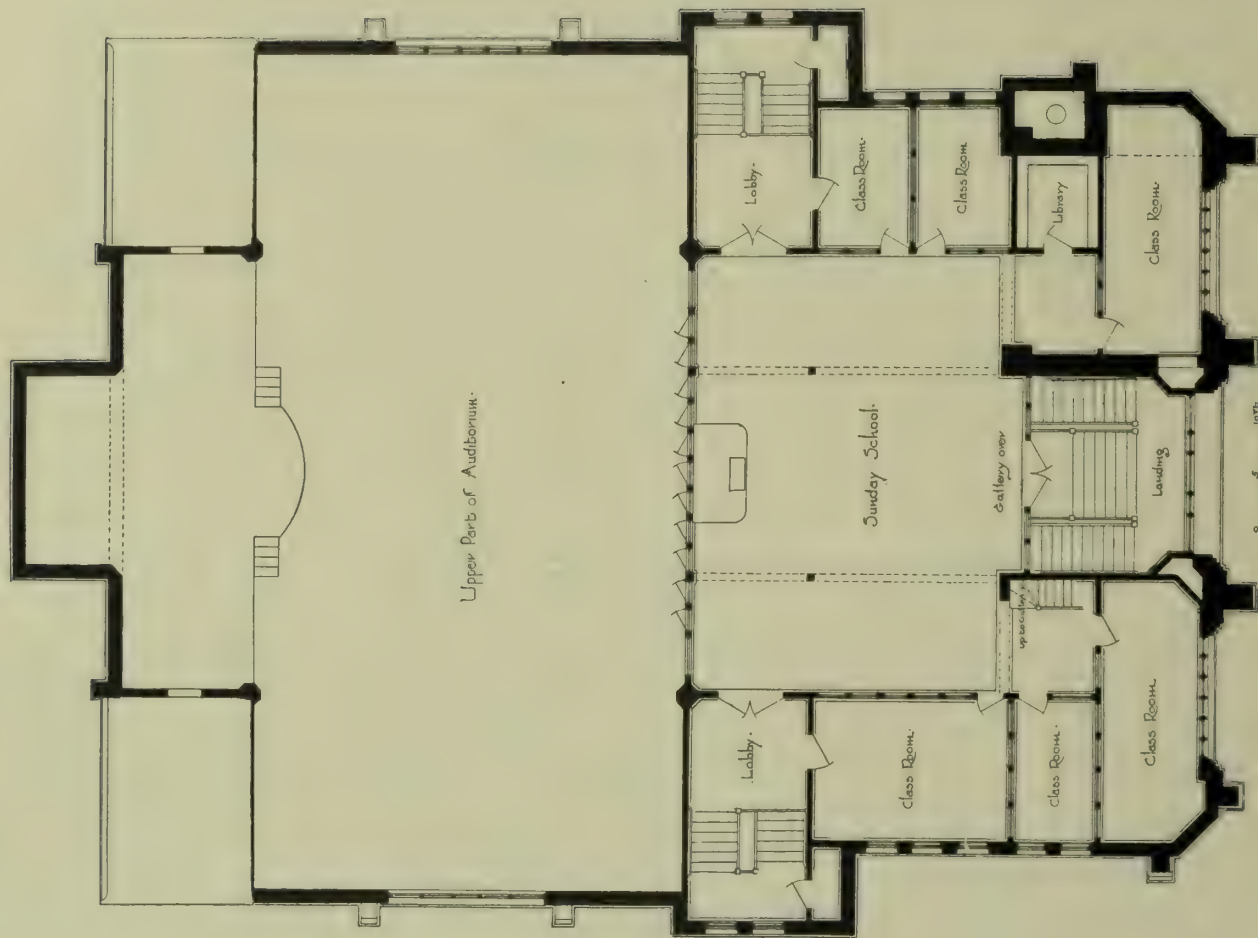


SECOND FLOOR PLAN.

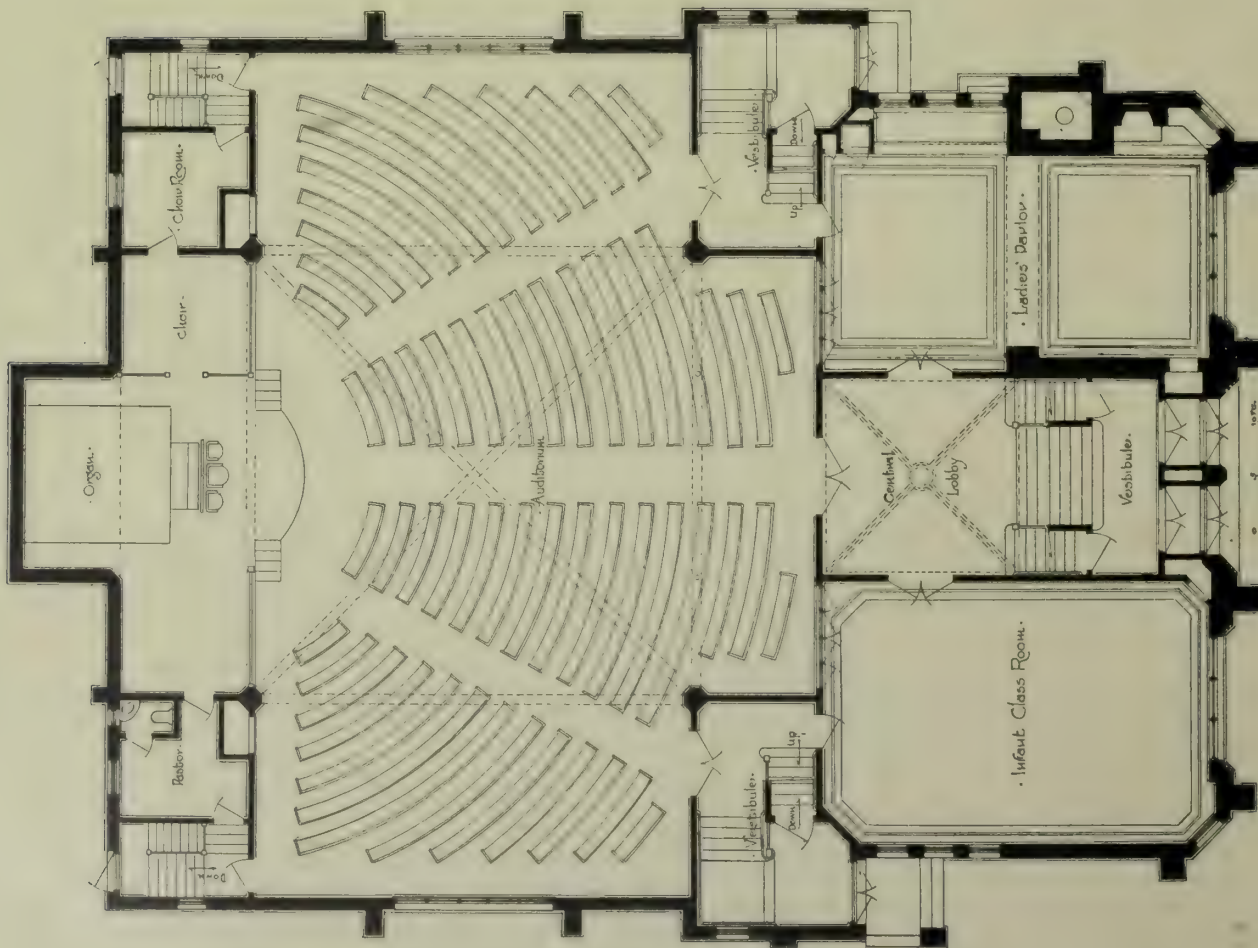


FRONT ELEVATION.

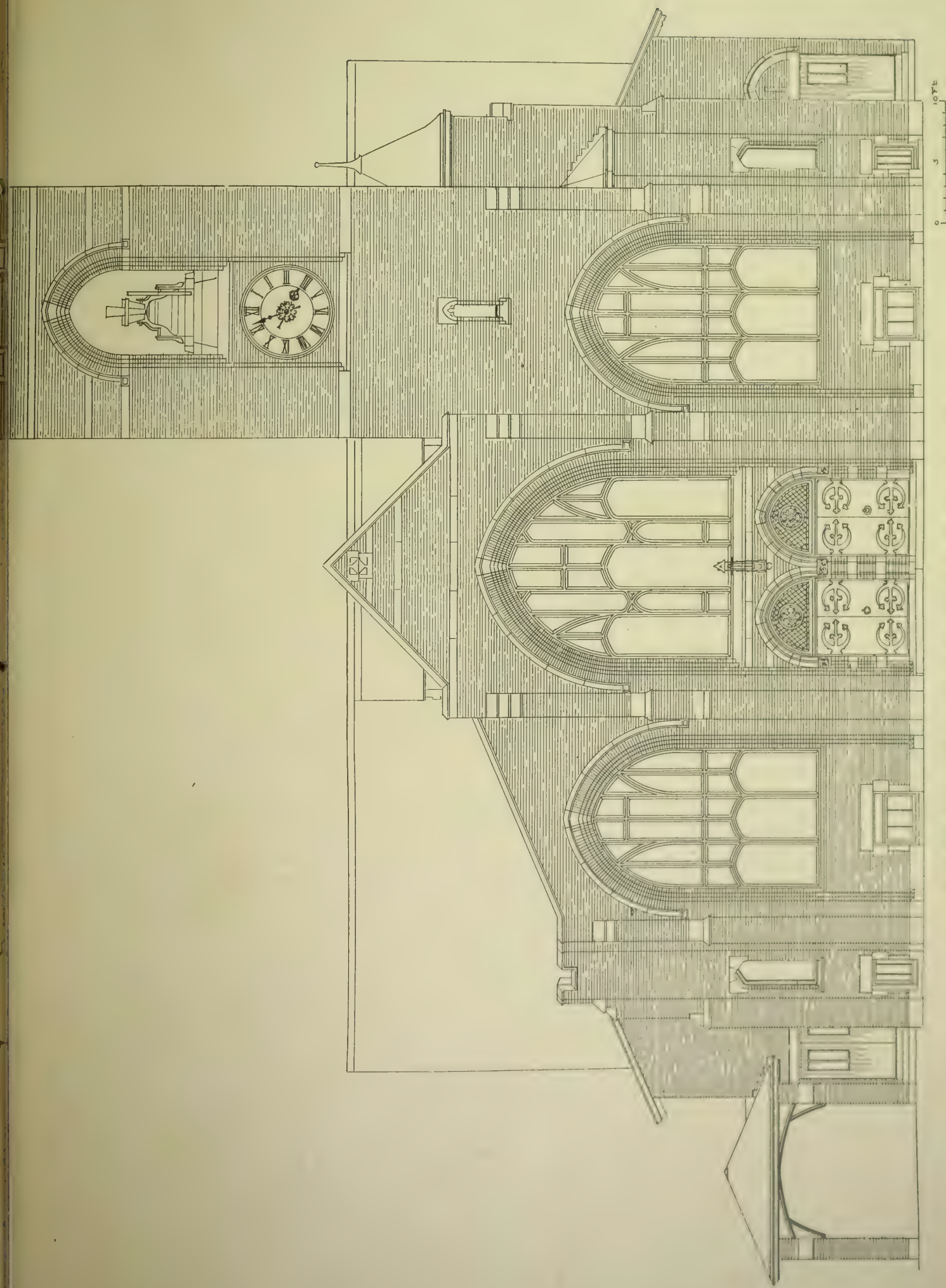




SECOND FLOOR PLAN.



FIRST FLOOR PLAN.



SECOND CONGREGATIONAL CHURCH, ATTLEBORO, MASS.

GEORGE F. NEWTON, ARCHITECT.

THE SUPPLEMENTARY PLACES IN THE HOUSE, WITH THE CHURCH AND SUNDAY SCHOOL ROOMS, FRONT, TO FORM A BARRIER AGAINST THE NOISE OF PASSENGER RAILWAY TRAINS.



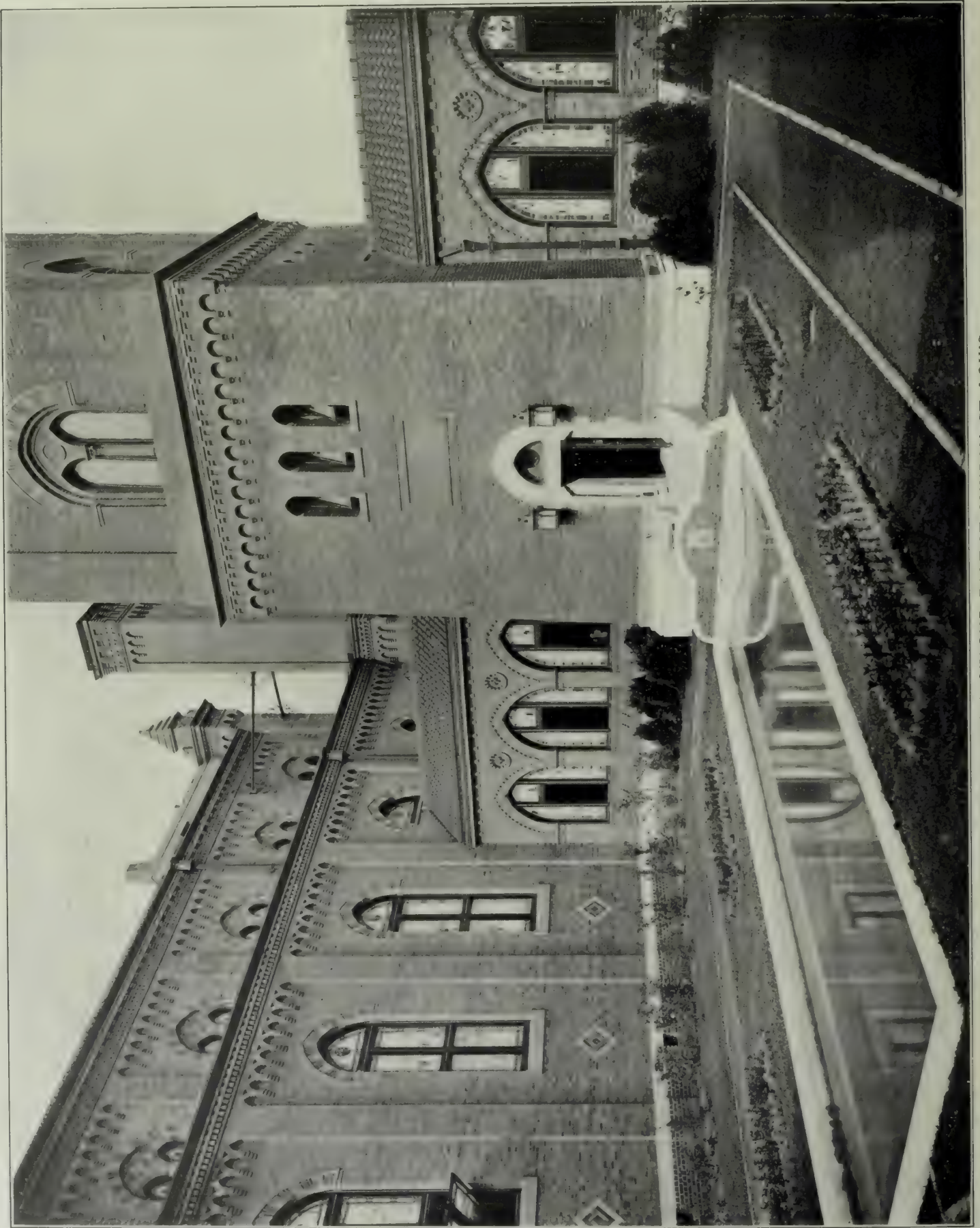
DETAIL OF BRICKWORK, INTERIOR OF CHURCH AND PLANS.
FIRST UNIVERSALIST CHURCH, ROCHESTER, N. Y.
CLAUDE BRAGDON, ARCHITECT.



GROUND FLOOR PLAN.
SECOND BAPTIST CHURCH, KINGSHIGHWAY BOULEVARD, ST. LOUIS.
MAURAN, RUSSELL & GARDEN. ARCHITECTS.



DETAIL OF ONE OF MAIN ENTRANCES, SECOND BAPTIST CHURCH, ST. LOUIS.
MAURAN, RUSSELL & GARDEN, ARCHITECTS.



VIEW FROM LOGGIA, SECOND BAPTIST CHURCH, ST. LOUIS.
MAURAN, RUSSELL & GARDEN, ARCHITECTS.



VIEW FROM STREET TOWARD LOGGIA, SECOND BAPTIST CHURCH, ST. LOUIS.
MAGRAN, HUSSELL & GARTEN, ARCHITECTS.

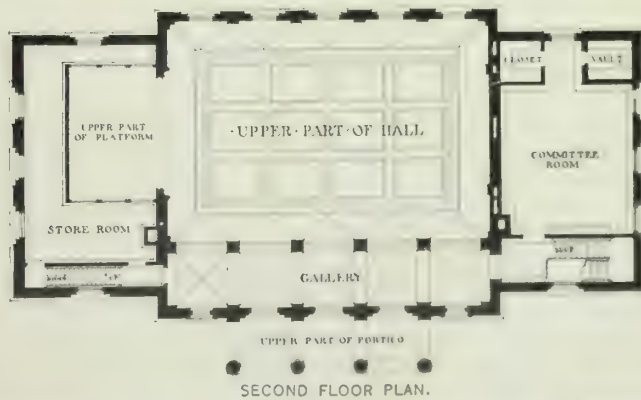


TOWN HALL AT LANCASTER, MASS.
A. W. CONWELL, ARCHT.

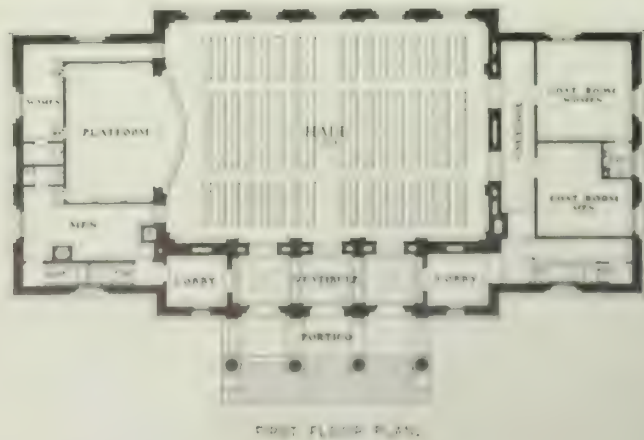
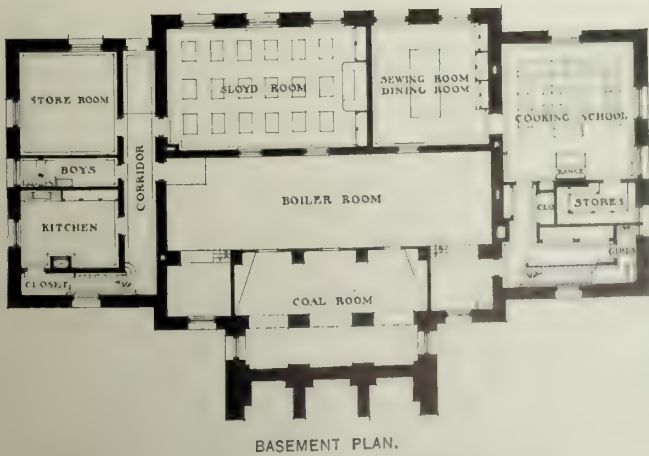


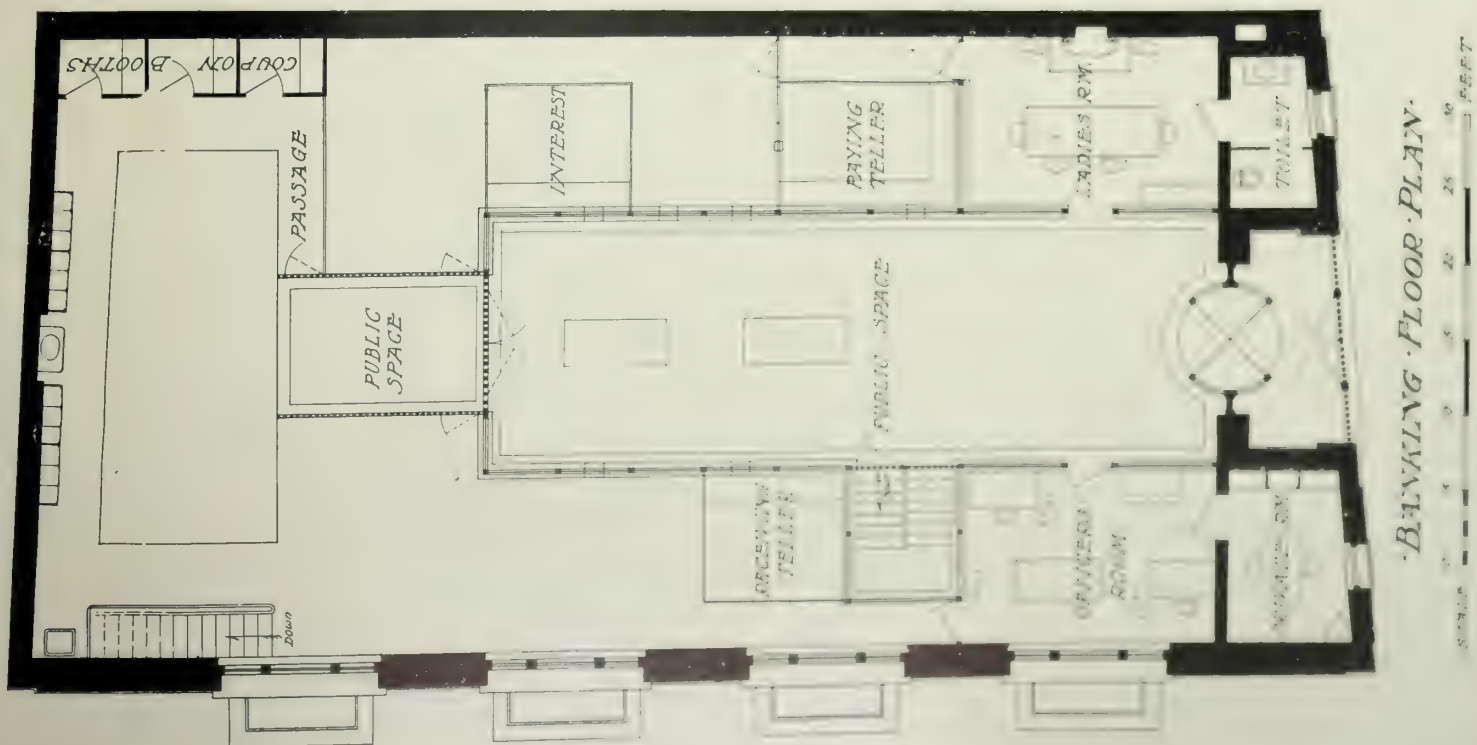
THE HALL.

TOWN HALL,
LANCASTER, MASS.



A. W. LONGFELLOW,
ARCHITECT.





NATIONAL CITY BANK OF NEW ROCHELLE, N. Y.
HENRY BACON, ARCHITECT.

